Fashion Merchandising: An Augmented Reality

Naeha A. Sayed
The Graduate Center, City University of New York

How does access to this work benefit you? Let us know!
Follow this and additional works at: https://academicworks.cuny.edu/gc_etds

Part of the Digital Communications and Networking Commons, Digital Humanities Commons, Fashion Business Commons, Liberal Studies Commons, Marketing Commons, and the Sales and Merchandising Commons

Recommended Citation
https://academicworks.cuny.edu/gc_etds/3126

This Thesis is brought to you by CUNY Academic Works. It has been accepted for inclusion in All Dissertations, Theses, and Capstone Projects by an authorized administrator of CUNY Academic Works. For more information, please contact deposit@gc.cuny.edu.
FASHION MERCHANDISING: AN AUGMENTED REALITY

by

NAEHA A SAYED

A Master’s Thesis submitted to the Graduate Faculty in Liberal Studies in partial fulfillment of the requirements for the Degree of Master of Arts, The City University of New York

2019
Fashion Merchandising: An Augmented Reality

by

Naeha A Sayed

This Manuscript has been read and accepted for the Graduate Faculty in Liberal Studies in satisfaction of the Thesis requirement for the Degree of Master of Arts.

Date

Eugenia Paulicelli
Thesis Advisor

Date

Dr. Elizabeth Macaulay-Lewis
Executive Officer

THE CITY UNIVERSITY OF NEW YORK
ABSTRACT

Fashion Merchandising: An Augmented Reality

by

Naeha A Sayed

Advisor: Eugenia Paulicelli

There is a continuous and constant transformation in the field of Augmented Reality (AR), both in the Retail, and the Manufacturing sector. It has started to influence everything from fashion runway shows to online shopping. Consumers dynamics have shifted in the fashion industry, the ways becoming more dominant than the old observant ones- the simple buying experience no longer satisfies them. Due to the emergence of the new digital platforms and technological enhancements, the consumers are looking for more- be it a more exciting buying experience or more user interaction or more enhanced products. This technological change starts with the consumer where Augmented Reality is being used to make fashion more accessible to the people. The future of fashion merchandising is to exploit AR platforms further, to make the whole buying experience digital. There is a lot of potential for AR not only in fashion merchandising on online platforms but also in the showrooms. But it is to be remembered, that this technological shift will cause the industry to miss the ‘human element’ eventually.

Keywords: Augmented Reality, Fashion, Merchandising, Marketing, Consumer, Experience.
ACKNOWLEDGMENTS

I would like to express my deep appreciation and gratitude to all my professors at The Graduate Center for their guidance and support throughout the MALS program. Also, a special thanks to Professor Eugenia Paulicelli for her patience and mentorship. She guided me from the initial stages- when I was considering my topic selection- right to the end, to the completion of this Thesis.

I would like to thank my grandparents, my parents, and sisters- who gave me their unequivocal support as always- a mere ‘thank you’ is not enough to express what I feel- I could not have accomplished all that I have, without them nor could I have achieved anything without the constant support, patience and understanding of my friends.

I will always be grateful to God to have had this opportunity. Lastly, I would like to thank the people who walked out of my life, to set me on this course to achieve my life goals.
# TABLE OF CONTENTS

Fashion Merchandising: An Augmented Reality ................................................................. 1

**Introduction** ...................................................................................................................... 1

**Digital Fashion** ................................................................................................................. 2

**Fashion Merchandising** .................................................................................................... 3

Luxury Fashion Designers - A Case Study ............................................................................. 7

**Pioneers of Fashion Digitalization in the Industry** ......................................................... 8

**Chapter Summary** ............................................................................................................ 22

Fashion Retailers - A Case Study .......................................................................................... 24

**Digitalization of Fast Fashion** ......................................................................................... 24

**Pioneers of Fashion Digitalization in the Industry** ......................................................... 28

**Chapter Summary** ............................................................................................................ 32

A Visual Reality .................................................................................................................... 34

**Projections and Visualizations** ....................................................................................... 34

**Chapter Summary** ............................................................................................................ 40

Conclusion ............................................................................................................................ 41

**Bibliography** ..................................................................................................................... 44
LIST OF FIGURES

Figure 1. Augmented Reality and Virtual Reality Forecast 2016-2022 ............................................. 6
Figure 2. Burberry Digital Mirrors ........................................................................................................ 10
Figure 3. Burberry Kisses Campaign ................................................................................................... 11
Figure 4. Burberry Booth ..................................................................................................................... 12
Figure 5. Burberry and Danny Sangra's Collaboration ...................................................................... 14
Figure 6. Burberry AR in iPhone's Camera Feed ............................................................................... 14
Figure 7. TommyNow Runway ............................................................................................................ 16
Figure 8. TommyNow Snap App ........................................................................................................ 17
Figure 9. Tommy Hilfiger's Digital Showroom .................................................................................. 18
Figure 10. Gucci Hallucination- Top: Flat Print Ad - Below: AR movement ................................. 20
Figure 11. Gucci App .......................................................................................................................... 21
Figure 12. Uniqlo Magic Mirror ......................................................................................................... 25
Figure 13. Algorithms Tour ............................................................................................................... 26
Figure 14. Zara Shop The Look ......................................................................................................... 28
Figure 15. AR Models .......................................................................................................................... 29
Figure 16. NIKEiD ............................................................................................................................... 30
Figure 17. NIKE SNKRS AR collaboration with Facebook Messenger ............................................ 31
Fashion Merchandising: An Augmented Reality

The evolution of the fashion industry and the modern fashion trends have always been dependent on the development of technology for design, production, distribution and consumption. Fashion, by its very nature, is a merchandising and a marketing tool- the former being the inherent essence and the latter a perfect balance of fashion sense and business know-how. The industry, in order to stay ahead on the fashion curve, requires a blend of art, compassion, business strategy and marketing. The use of Artificial Intelligence (AI) and Augmented Reality (AR) has taken the fashion industry by storm in the past five years- with most designers and brands becoming heavily dependent on both in the production and sales processes. The digital age of augmented and virtual reality in fashion has just begun.

Introduction

According to a study by Bernard Booms and Mary Bitner (1981) the most important part of a service industry is the marketing mix, consisting of the “7Ps” model: Product, Price, Promotion, Place, People, Processes and Physical evidence. The Fashion Industry involves the use of all 7Ps of the product marketing mix.

The Fashion Industry has welcomed the use of digital media, employing it as a means to connect brands, labels and customers, realizing that the need for continuous innovation is crucial for business. Other than moving businesses online, fashion brands are continuously introducing creative and engaging ways to gain power. From deploying predictive analytics for style trends to employing robots that sew and cut fabric, Artificial Intelligence (AI) enhancements in the fashion industry is going beyond traditional automated tasks. On the other hand, Augmented
Reality (AR) has been on the rise in the past 5 years. Designers and brands, globally, are slowly embracing AR in product merchandising and marketing.

There is a continuous and constant transformation in the field of Augmented Reality (AR), both in the Retail, as well as the Manufacturing sector. AR has started to influence everything from fashion runway shows to online shopping. In-spite of the digital age being here and upon us, as it were and even with the transformation of fashion brands, such technological change does not start with technology per se- it starts with the consumer- like every other thing in the economy. The technological transformation in fashion, preys on the concept of instant gratification of the consumer- this is where it all begins- the technological revolution of the Fashion Industry.

Augmented and Virtual reality are being used increasingly, to create unique digital experiences for shopping online and in stores. The new experimental Era in fashion is taking over marketing by force- creative augmented experiences that build instant indulgence for the consumers, like pop-up stores using AR, or interactive catalogues, are used. Online shopping and e-commerce, by making online shopping more interactive, where shoppers can see products in 3D reality, are marketing segments which are on the rise as well. These advancements all fall under the umbrella of fashion merchandising in the Fashion Industry. Further, Augmented Reality is also being used for in-store shopping, enabling the consumers to access catalogs and digital media to see the merchandise and stocks.

**Digital Fashion**

*One may ask, what is digital fashion, it is “the application of digital technology in its many forms for the production and consumption of fashion apparel and services” (Vecci et al., 2016).*
Digitalization in fashion has been happening since the beginning of the digital age. The process has been slow, as the field of fashion is a harder nut to crack when it comes to a change in technology, which means there will be change in the centuries old art that has been passed on through generations. Even though, fashion has been continuously evolving when it comes to trends of apparel and footwear, but the incorporation of the use of new digital technology has been slow.

When it comes to merging technology and fashion it is a “challenge to change the operations that have been happening in the same set way in the fashion industry over the years. This technological change has been difficult and will prove to be difficult in the time to come”, according to Noah Gellman (co-founder, The Lead) in a conference “Disrupting Fashion” event, held at The Graduate Center (CUNY), on 26th February 2019.

**Fashion Merchandising.**

The fashion industry consists of different sectors- design, development and business. The Business Sector can be further divided into two major branches, Fashion Marketing and Fashion Merchandising. Fashion Marketing can be summed up as advertising, where the main goal is to identify consumer preferences, in order to develop marketing strategies to increase product demand. This is mainly used to market and promote the product to the end consumer. Whereas, Fashion Merchandising has a broader canopy in the Industry. Fashion Merchandising encompasses every stage, from the conception of the product, to design and ultimately to sales. Fashion Merchandising aims to increase overall profits by enhancing the whole product in order to lure and entice the consumer, by focusing on what they want, how they want it and where they
want it. Since the entire Fashion Industry is dependent on and revolves around the consumer, a major part of the merchandising canopy is the actual marketing of the product.

The evolution of digital fashion merchandising began in the 1990s through the fashion websites and social media platforms. The past two decades or so, have seen a lot of improvement in existing and development of new and diverse digital merchandising tools- with the use of technology on the rise to increase consumer engagement in order to market the product.

**Augmented Reality**

Augmented Reality is a medium in which information is added to the physical world in registration with the world; however, there are many different ways in which that information can be added, changed, or modified in the physical world. If we take that definition at face value, virtually anything can be considered augmented reality. (Craig, 2013)

So, what exactly is augmented reality? Any information in the age which we live in is dependent on the location and presence of our physical world. That said, our physical world is dependent and built upon this digital information. Augmented Reality is a methodology, an interactive experience of our physical world, where the environment is augmented by digitally generated information, that can be both visual and auditory.

*A Digital Age- What’s the future of fashion.*

As we know, the need for continuous innovation is crucial for the fashion business. Other than moving business online, fashion brands are continuously introducing creative and engaging ways to gain power. Artificial Intelligence (AI) enhancements in the Fashion Industry is going beyond traditional automated tasks, ranging from deploying predictive analytics for style trends to employing robots that sew and cut fabric, to name a couple. On the other hand, Augmented
Reality (AR) has been on the rise since the past 5 years. Designers and brands globally are slowly embracing AR in product merchandising and marketing. There is a continuous and constant transformation in the field of Augmented Reality (AR), both in the Retail, as well as the Manufacturing sector. AR has started to influence everything from fashion runway shows to online shopping. In-spite of the digital age being here and upon us, as it were and even with the transformation of fashion brands, such technological change does not start with technology per se- it starts with the consumer- like every other thing in the economy. The technological transformation in fashion, preys on the concept of instant gratification of the consumer- this is where it all begins- the technological revolution of the Fashion Industry.

Augmented and Virtual reality are being used increasingly, to create unique digital experiences for shopping online and in stores. The new experimental Era in fashion is taking over marketing by force- creative augmented experiences that build instant indulgence for the consumers, like pop-up stores using AR, or interactive catalogues, are used. Online shopping and e-commerce, by making online shopping more interactive, where shoppers can see products in 3D reality, are marketing segments which are on the rise as well. These advancements all fall under the umbrella of fashion merchandising in the Fashion Industry. Further, Augmented Reality is also being used for in-store shopping, enabling the consumers to access catalogs and digital media to see the merchandise and stocks.
A statistic forecast (Fig. 1) shows the global Augmented Reality from 2016 to 2019 and forecasted trend until 2022. The study from Statista 2019 reflects the market size in billion US dollars. In this graph one can identify the potential of augmented reality in the future.
Luxury Fashion Designers- A Case Study

Luxury fashion continues to develop new avenues for innovation. Nowadays, whatever is in fashion, on or around the streets and runways has been heavily digitalized by augmented reality, Apps and just vivid imagination. Last year’s New York Fashion Week (2018) was a proof of the use of technology and digitalization originality, as until then, the fashion world and the digital world had never been paired so impeccably, always having been considered two ends of a rope.

Luxury Designers and Brands: A Digital Fashion Revolution

For over a decade, fashion designers and retailers have been trying to incorporate technology with fashion. Technology has always been a part of the fashion industry, with the industry’s production unit always having been dependent on the growth and evolution of new technological changes. A decade ago, designers came up with the term “digital fashion”- this was a fusion of creativity with digital avenues- an evolution, where fashion was to be digitalized. It was the start of a decade where the use of digital and technological avenues was not limited to production and machinery only.

Luxury designers as well as fashion retailers started to think out of the box. They started using information and communication technology to design and produce fashion products, which in turn had a huge impact on marketing, distribution and sales of the product. This use of digital avenues contributes to co-create the fashion world.

The Fashion Industry is a trillion-dollar industry and like any other business, it has to rely on a strong and effective relationship between creating, communicating and distributing its product- as the economy has evolved, so have the ways in building this relationship. In today’s world, a designer’s creativity is seen more in the way he or she markets his or her products, and
this is where the new digital media steps in. Fashion merchandising and promotion are now the key element of any designer’s or retailer’s marketing mix. From fashion press to fashion shows, window displays to website displays, everything is adopting digital avenues, to keep things fresh and to keep the consumers involved. Ultimately, it all comes down to the end consumer.

Since the year 2010, many brands have opted as well as adapted, to using artificial intelligence to identify the buying trends of consumers- tracking them, among others, by online shopping habits, in-store flow, the usage of Radio-frequency identification (RIPD), and social media hashtags. Then there are some designers and brands who used virtual reality to attract consumers, but the emerging latest trend is the use of “Augmented Retail” strategies.

“The new era is one anchored in ‘augmented retail’, a blend of digital and physical, allowing a shopper to shift seamlessly between the two realms,” the same way people tend to use technology in their everyday lives. (New York Times, 2017).

Pioneers of Fashion Digitalization in the Industry

Burberry is one of the first luxury brands to go digital; having been in the fashion industry for more than 160 years, somehow the brand has maintained its originality, classic style heritage yet has managed to balance its creativity and digital savviness. Burberry often announces its new technological fashion innovations, such as the season collections. It is one of the brands who are at the forefront of the fashion digitalization revolution.

Burberry’s CEO, Angela Ahrendts, in 2006, envisioned the brand to be the first company in the fashion industry to be “fully digital”. Burberry was the first brand to live stream its fashion runway shows on its website in the year 2010; it was also one of the first brands to use virtual reality, virtual image technology such as holograms and projections in its flagship store in
Beijing. After having been successful in the use of the aforesaid digital strategies, Burberry took a more drastic step into the Virtual Reality Realm by launching “Magic Mirrors” in September 2012, in its London Regent Street store.

“Angela Ahrendts, Burberry Chief Executive Officer. Said “Burberry Regent Street brings our digital world to life in a physical space for the first time, where customers can experience every facet of the brand through immersive multimedia content, exactly as the do online. Walking through the doors is just like walking into our website. It is Burberry World Live.” (Batten, 2012).

These digital mirrors were huge interactive screens, that gave a fully 360° immersive experience to their customers (Fig.2). This type of digital in-store fashion merchandising increased the foot fall in the Regent Street store by 20% in the following six months. Since this type of strategy seems to go out of fashion quickly, as the consumers get used to the big screen displays after a while, it led the brand to re-vamp its stores with other new digital avenues that would set them apart in the trillion-dollar industry. Burberry’s development towards becoming a digitally inclusive brand, has inspired a lot of designers and retail brands, but the overall growth towards technology has been slow.

“Pulling a digital all the way through a strategy for luxury retailers is a rarity and needs top-down vision”. Said Amy Gale, associate planning director at Isobar US. “It’s sad that Burberry in one of the few to come to mind here.” (Milnes, 2015)
Burberry has been the pioneer of using virtual reality in fashion merchandising in the industry. In 2013, Burberry came up with a new marketing and merchandising strategy involving the use of virtual reality, for its new product ‘Burberry kisses’ – a line of lipstick launched in that year. To promote its beauty product line, Burberry partnered up with Google to create a unique digital experience, that was unheard of before in the fashion world. Burberry wanted to explore the concept of affection and love by a simple action of sending a “kiss” virtually. The Virtual kiss targeted the millennial market and was inspired by their need to be always connected to technology- the internet and the online world. The Burberry Virtual kiss was once again a breakthrough in the fashion digitalization world. (Fig.3)
“The collaboration’s result was a fairly simple campaign. With the use of Google’s facial recognition technology, Burberry enabled users to send personal messages sealed with their own virtual kiss. The kiss was captured via webcam and the computer replicated a user’s lips. Once the message was written and sealed with a user’s kiss, the message was sent.” (Danao, 2017)
This simple yet technologically enriched campaign once again upped the sales and the foot fall in the store. In 2015, once again Burberry used virtual reality for its personalized campaign called “Burberry Booth”, in collaboration with ‘Google’. The Burberry Booth gave the in-store customers an opportunity to share their images alongside celebrities, using real-time video stitching technology, on their social media profiles, giving an all-inclusive and personalized experience. (Fig.4)
Burberry is a “digital forerunner” in the fashion industry, compared to the other designers and fashion brands, when seen on a digitalization of fashion timeline. Keeping this in view, it does not come as a shock that Burberry was also one of the first brands to use ‘Augmented Reality’ for fashion merchandising in fashion industry. In September 2017, Burberry collaborated with Apple to introduce a new feature in the Apple Mobile App, launching it on the Fall runway walk, which used AR Kit platform (a software tool that uses motion tracking sensors). The new feature gave the users of the App the ability to add Artist Danny Sangra’s drawings (Fig.5) inspired by Burberry designs to their iPhone camera feeds (Fig.6). It was the first time such an initiative was taken, and this use of Augmented Reality gave an entirely new meaning to fashion merchandising, increasing customer engagement and successfully promoting the new brand image of Burberry. The new feature was initially rolled out in London Fashion Week but later became available in Paris, Milan and New York; needless to say, the use of AR kit (Augmented Reality kit) was a wise strategy used by the company. Snapchat is another App that found fame among the millennials in early 2012, as a social media platform which involves user interaction with virtual stickers and augmented reality objects. Similar to Snapchat, Burberry used Augmented Reality technology to integrate 3D enabled objects and drawings, into the runway walk scene, placing and anchoring in the 3D space through the camera lens.
Figure 5. Burberry and Danny Sangra's Collaboration

Figure 6. Burberry AR in iPhone's Camera Feed
Augmented Reality is a recent and diverse field, which brands are still trying to discover and tap into. What was once only viewed in science-fiction movies is now a reality. Augmented Reality (AR) is a field with a huge potential, especially in the fashion industry- an example of this was seen when Tommy Hilfiger dialed its technological/digital strategy a notch up.

Tommy Hilfiger, is known “to have turned the fashion empire into a multi-media machine.” With the launch of its first website in 1999, Tommy Hilfiger has been neck-to-neck with Burberry on the fashion digitalization front. In late 2015, the brand launched a new campaign in its Manhattan 5th Avenue store; it was the first time that any brand had launched a 360° virtual Reality Fall runway presentation. The campaign involved using Samsung Gear VR devices in-store. Tommy Hilfiger customers could now have the experience of looking at the latest runway shows, as though they were sitting in the front row at the Park Avenue Armory, while still being in-store. Through this campaign, the customers got a feeling of being included, a sense of importance, of being valued, simultaneously leading to an increase in the sale of the brand’s latest collection, which was readily available on the racks at the store.

Business Wire, in the 2015 Issue, reported Tommy Hilfiger as saying, “Our unique digital showroom concept is a juxtaposition of craft and innovation. The platforms ‘reflect’ values which are at the heart of our brands DNA: entrepreneurial, inspirational, surprising, inclusive and accessible. We believe this is the sales experience of the future and look forward to working with our retail partners in this exciting setup.”

In the early 2018, Tommy Hilfiger launched TommyNow, a runway collaboration with Gigi Hadid- this was the first time Augmented Reality was used on a runway show. TommyNow enabled the consumers to buy looks from the runway while the show was still underway. By
using the TommyNow website live on the runway, they could click a picture of the models and add to cart, the look he/she was wearing. (Fig.7)

Later that month, Tommy Hilfiger also launched its TommyNow Snap App. This App has an augmented reality feature, which enables the consumers to choose a product from the Tommy Hilfiger line and see the new collection/ outfits right then, using the augmented reality feature. (Fig.8) Clothes are viewed on real 3D models via the AR feature. By using the camera panning feature on their smartphones, the consumers can see the outfit on the model from all angles. All these Runway looks were, for the first time, made immediately available for purchase in 70 countries worldwide, on the Tommy Hilfiger online stores, live stream shopping, social media and on the TommyNow Snap App.
“My vision for TommyNow was to create a global platform that we could take on tour to bring our show experience to new audiences around the world,” Hilfiger said. “It’s about the fusion of fashion, entertainment and pop culture and experiences, performances and inspiring interactions that are designed around our consumers. As one of the fashion capitals of the world, Milan is the perfect place to celebrate our next TommyNow show.” (Lockwood, 2017)

After the success of digital showroom concept in late 2018, Tommy Hilfiger has earned its position as the most digitally apt brand in the fashion industry. The digital showroom (Fig.9), launched in Amsterdam, at the headquarters, is a retail store that does not house any physical products, and enables the customers to look through the digital catalog and see augmented projections of the objects.
Through all the above-mentioned innovations, it seemed like Tommy Hilfiger was testing its audience, the customer preferences, their engagement and the overall response to the new digital platforms. In February 2019, the brand launched another Augmented Reality platform- AR powered digital fitting rooms- to help promote its Spring/Summer Limited Edition Preppy World Collection. The new platform, gives a person, equipped with a smartphone, the ability to use the brands AR feature, through the camera, allowing them to digitally try on augmented clothing, if they are near the Tommy Hilfiger’s Pop-up store, - an innovative way for consumer engagement.

The AR powered fitting room is a pioneering and futuristic way of mobile marketing, trailblazing to say the least, especially in this digital age, where every brand is looking for an inventive way to conquer the digital platforms, taking it up a notch every season to retain
consumer excitement and involvement. The Application launches automatically, whenever a user comes within the vicinity of one of the Tommy Hilfiger pop-up stores, allowing them to view the virtual imagery inside, take pictures of themselves or friends interacting with the content and upload it to the Tommy Hilfiger fitting room (Tode, 2019).

The first Pop-up store for this brand was in United States, in New York, the store will be traveling to London, Los Angeles, Stockholm and Belgium in the next few months. The store was designed in a way to showcase the Prep World Collection; it resembles a beach house on the East Coast. The Tommy Hilfiger’s collection shows the way different cities around the world have interpreted the preppy style over the years. This AR feature is a good way to promote social awareness regarding fashion worldwide.

Furthermore, while Tommy Hilfiger and Burberry have been two of the leading digital brands in the Luxury fashion industry, another Luxury Designer also tried its hand at Augmented Reality in Fashion Merchandising. Gucci, one of the famous luxury fashion brands founded in 1921, is the first Italian brand to invest in an up-to-date website with the best functionality and a solid user experience. Gucci is known to have utilized all social media apps\(^1\), website and mobile apps, in order to spread brand awareness, and benefit directly from e-commerce sale while increasing the foot fall in actual stores. In the year 2014, Gucci’s strategy was to have a consistent viewpoint on all social media channels, to enhance the consumer’s understanding of the brand image and narrative.

In a study conducted by Gartner L2 (L2 research is a data driven analysis of the entire fashion industry), in the year 2016, Gucci’s mobile app was rated the best among all brand. The L2, gave the top spot to Gucci for “best digital fashion brand” performance for the year 2016 and

\(^1\) Facebook, Instagram and Twitter
2017. Further, Britton, the strategy and marketing consulting firm, in a case-study of Gucci’s rise to become one the world’s strongest fashion houses, wrote, “Gucci has woven e-commerce, social media, digital marketing and the integration of mobile apps into the tapestry of its legacy offline business. As a consequence, the modern consumer’s relationship with Gucci is holistic, which has resulted in huge returns from longtime customers and new converts alike.” (Milnes, 2016)

In the spring of 2018, Gucci changed the concept of fashion merchandising, by using Augmented Reality in its window displays and on print Ads (Fig.10) called the “Gucci Hallucination”. This was the first time AR was in print.

Figure 10. Gucci Hallucination- Top: Flat Print Ad - Below: AR movement
These campaign illustrations appeared in magazines and newspapers and appeared to be scannable on the Gucci App- once the illustration was scanned in the App, the augmented features could be seen. For example, in Fig.10, The print Ad was a flat illustration but while looking through the Gucci App the augmented snake came to life and would start moving around. There were five different illustrations that were used for Gucci Hallucination and launched on the Gucci App (Fig.11); in addition, these illustrations were also launched in fifty-two stores worldwide, to engage the customer and make the buying experience fun.

At 52 selected Gucci stores, after purchases, customers receive Spanish artist Ignasi Monreal’s artwork in the form of tickets for access to VR devices. This showcases a 360-degree panorama of Monreal’s campaign artwork. The scannable ads via the Gucci app are also available in 15 out of the 20 campaign illustrations in print and allow consumers to discover the campaign in AR. (Zaidi, 2018)
Chapter Summary

The luxury fashion industry has seen a decrease in the product sales, ever since the emergence of fast fashion. Given the economy, the public does not want to spend so much on fashion, especially since it changes at least 52 times in a season- only a small percentage prefers and can afford to spend on luxury goods. Another reason for the decrease in sales was the change in customer demographics. During the past decade, the target market of the luxury fashion brands shifted from the Gen X to millennials and Gen Z. This change has urged luxury brands like, Burberry, Gucci, Tommy Hilfiger and many more to change their merchandising strategies in order to attract this new segment of the market, as this generation are now people with more disposable income. The need to make a place in this relatively new market, has led the designers to find and to use new technological-related merchandising strategies to enhance consumer experience. And, Augmented Reality is one of the new ways in which this market segment can be targeted. AR gives the consumers an augmented experience in 3D space, which they can relate to, and which makes them see the future. There is an inherent need in most people, which motivates them to be ahead of others and to be able to use the latest technologies. In the year 2018, combining fashion and technology, was seamlessly done by TommyNow and Gucci; both launched a merchandising strategy that had been never used before, leading them to create more brand awareness.

On the spot buying at Fashion Runways, AR scannable print ads, augmented and digital showrooms, are just the start of how fashion brands can incorporate Augmented and Virtual Reality in merchandising. This is the present and future of the Fashion Industry- the digitalization of fashion. But does fashion digitalization and use of AR mean that there will be an increase in job opportunities in the Information and Technology field or will it create a whole
new field where fashion and technology go hand in hand?
Fashion Retailers- A Case Study

In the age of fast fashion, which has a ‘see-now and buy-now’ strategy, fashion retailers are adopting new practices to keep up with the fashion industry. During the last five to ten years, the retail industry has changed drastically- these changes have also translated into the fashion industry, as the emergence of e-commerce, digital marketing and fast fashion.

Digitalization of Fast Fashion

The traditional method of launching four fashion seasons each year has changed to about 52 fashion seasons yearly. These fast fashion retailers are trying to produce luxury fashion trends while they are still on the runway, leading to a huge impact on the luxury fashion sales. Brands like TopShop, Zara, Gap and so many others have made their product development cycles shorter, which leads to an increased demand for an effective fashion merchandising strategy.

As we have seen, creative augmented experiences that build instant indulgence for the consumers are being used by the luxury fashion brands, for example, pop-up stores using AR, or interactive catalogs and advertisements. Online shopping is a digital marketing sector that is on the rise as well, by making it more interactive, enabling the shoppers to see the products in 3D reality.

A company called Obsess, took the AR marketing world to another level when it created a virtual store for Rebecca Minkoff’s ready-to-wear apparel. The store enabled consumers to shop racks and runway looks using a headset, where the checkout was done by virtual reality.

“What we’re trying to show here is that shopping in the future will be a combination of some elements of what physical stores have today, like visual merchandising and curated pieces, but then they have all of these other things that are not possible in physical stores,” (Singh, 2018. Founder and CEO of Obsess).
In addition, 3D and QR scanning along with AR are reinventing the fitting room experience. An example of this is, the Gap’s Dressing Room App, which uses AR to help online shopping, enabling the consumers to see how clothes will look and fit before they buy them. Same is also the case with Uniqlo, where they were using AR mirrors in 2012 (Fig.12), the customers now do not have to physically try on clothes. Uniqlo’s Magic mirrors let the customers see how clothes they try in-store, looks in different color options, on them. They can choose all the available color options, from a digital catalog, for the style they are currently wearing.

Figure 12. Uniqlo Magic Mirror

The Magic Mirrors give the customers the ability to see themselves in an array of color ranges of jacket styles in the Fall at Uniqlo, without having to use the fitting rooms, and without the hassle of swapping clothes. Uniqlo was using the AR technology from “Holition and Dai Nippon Printing Co.” and this AR feature was also linked to social media, so the customers who
would walk into the store and use the magic mirrors, could share their looks directly from the store.

In order to help fashion retailers with fast fashion, Stitch Fix, an online subscription-based company, provides a personal shopping service in the United States. It was founded in the year 2011 but went public in November 2017. The personalization is purely data driven; it has AI machine-learning systems coded, and an understanding of customer psychology, which uses all this data to personalize fashion trends for millions of subscribers. This is a front for AI focused fashion with its the products, created by algorithms\(^2\) which identify trends that were missed from the company’s stock and suggest new designs which can replace the missing styles, based on a combinations of consumer trend analysis of color, pattern, and fabric. Stitch Fix is a hub for customer data, which informs its AI of the constantly changing trends, because of the subscription based, and feedback-oriented business model. The company illustrates how it works (Fig.13) in the “Algorithms Tour” on its website.

\[ P(\mathbf{x}) = f(s) \]

*Figure 13. Algorithms Tour*

\(^2\) A process of calculation through computers; computer-aided problem solving.
In times of Fast Fashion, where the product moves quickly, from the runway to manufacturing to the store shelves, the brand has been constantly changing. Popular brands like H&M, Uniqlo and Zara’s have built on the fast fashion model, where speed is imperative and of the utmost importance. Speed to create new collections, to manufacture and deliver them to the people, the consumers, in the lowest possible time. Whenever these brands spot a new trend, they use their expertise in creating that design and bringing it to the market in a fast, and feasible manner; this means that these fast fashion brands deliver the product to the market before the original product from the designer even hits the shelves, thus allowing fast fashion brands to outrun the traditional labels and designers. Due to the agile ability of such brands, it makes it easier to push more styles and collections in the stores and to cater to a smaller targeted sect of the consumer market, thereby meaning that they can put out more collections with a short life span on shelves and keep on rotating products and new trends. Social media plays a crucial part in the lifespan cycle of fast fashion- digital marketing, social media bloggers and other tools help spread new trends and styles fast. There is more turnover and walk-in customer in the stores or on e-commerce. Consumers act on indulgence, the “See-Now Buy-Now” tool launched by amazon, Instagram and others is helping them fall prey or succumb to the increasing use of technology. However, not all are indulging in instant gratification- some consumers are socially conscientious and steer clear by embracing the “slow fashion”, which mainly focuses on the credibility, and sustainability of the product, including the transparency of materials used, ethical labor and manufacturing processes. Be it Slow fashion or Fast fashion, both have transformed the workings of the fashion industry.
Pioneers of Fashion Digitalization in the Industry

Zara has been known as one of the most successful fast fashion brands, where the merchandise arrives and replenishes quickly. Zara has collaborated with technology since 2014, when it first introduced the RIFD (Radio Frequency Identification) technology in-store; since then, this fast fashion brand has entered into AR, and has launched an App “Shop The Look” (Fig.14) and store displays that show models wearing outfits from its current product line. Whenever a customer holds a smartphone up to the designated box sensors at the store or the shop windows, these augmented models appear (Fig.15).

Figure 14. Zara Shop The Look
“To lure the millennial crowd, Zara is using AR displays in 120 stores worldwide from April 18, 2018. The AR feature allows customers to hold their mobile phones in front of a sensor on the displayed models within the stores or designated shop windows. Through a single click, the shoppers can instantly buy the selective looks”. (Zaidi, 2018)

Even though, AR is being used by many in the fashion industry, the concept is said to have been developed by NIKE. In the year 2015, Nike launched the “SNKRS” App, which allowed the consumers to create their own product combinations. On 4th July 2016, according to (Patent for AR design system) the company, Nike filed a patent application for an augmented reality system it had created, before the launch of Pokémon Go. In the same year Nike launched its augmented reality feature called “NIKEiD” at its Paris flagship store (Fig.16). “Nike is debuting a groundbreaking new technology in its Paris flagship store on the Champs-Élysées
that can transform any object into a screen. The system, developed by French startup SmartPixels, combines augmented reality and video-mapping techniques and is being trialled to enhance the brand’s NIKEiD service”. (Hirschmiller, 2016)

Figure 16. NIKEiD
This feature enabled the customers to order and customize their shoes in-store while being able to see the actual augmented product in front of them. This was a breakthrough in the fashion world, where life-sized products were augmented to see before placing an order for production. In early 2018, Nike collaborated with Facebook Messenger, enabling the consumers to connect the SNKRS App account, to shop using the AR feature (Fig.17); also, in the same year, Nike launched its in-store snapchat AR experience feature.

![NIKE SNKRS AR collaboration with Facebook Messenger](image)

NIKE is one footwear brand that has been in collaboration with technology since the beginning and has tried to digitalize the entire footwear fashion industry by adding more to the consumer experience.
Chapter Summary

Fast fashion has changed the fashion industry by leaps and bounds. The Product moves quickly, from the runway to manufacturing to the store and ultimately to the customer. People now get the latest fashion even before it is off the runway. This change has led to the designers launching new collection and seasons faster than ever before. Each and every brand is constantly forced to change, in order to evolve and keep pace with time, to prevent its extinction. Technology has taken root in each change in the fashion industry and like Luxury designers, Fast Fashion retailers are also adopting to use Augmented Reality, Virtual Reality and Artificial Intelligence in their merchandising strategies.

For brands like, Zara and Nike, the need to stay up-to-date with new technology has become an inherent part of its very fabric. Nike claims to be the first brand to ever launch Augmented Reality in the footwear industry. Nike consumers can now see an augmented version of the customized footwear they want to order, make changes accordingly before the product is manufactured and even virtually try it on to see how it looks on their feet. The Uniqlo consumers could virtually try on different colors of the jacket they wanted, without walking into a fitting room and changing. The use of these technology driven advances, decreased the hassles which the consumers face, when they walk into the store, becoming one of the reasons why people are opting to shop online rather than going into a physical store. Zara, as a brand, has been in sync with technological changes from the start- and the use of AR in merchandising at stores has been one of the popular strategies in the industry, while Augmented Pop-up models also ease the consumer shopping experience, as now they are able to see how a product looks on this avatar with a 360° view.

Has this technological shift in the fashion industry increased consumer interaction and
heightened the user experience, or is this just a gimmick the fast fashion brands are using to increase the sales?
A Visual Reality

The Fashion Industry is composed of different aspects, including: the Product Aspect, consisting of Research & Development, Design and Manufacturing; the Business Aspect, made up of Distribution, Marketing and Merchandising, all linked with social media in today’s world. This means that all digital platforms, are connected and have led to the shift in consumer dynamics. In this chapter, we will see how the development in technology has contributed to the digital shift in the fashion industry.

The impact of Digital platforms as well as the use of Augmented Reality in the fashion industry, has been translated into projections and visualizations, in the research conducted below:

Projections and Visualizations

![Digital Developments Visualization](image)
In the above visualization (1) using Tableau we can see the digital developments in the world since the launch of the web in 1989. Since then to 2013, a lot of digital platforms came into existence, which have led to the digital shift in the fashion industry that we see today.

![AR in Fashion vs AR in Tech Popularity](chart1)

**Google Search Trends**

![Google Search Trends](chart2)

Visualization 2. AR in Fashion vs AR in Technology 2013-2018

Augmented Reality has been used a lot in information technology related fields, but its popularity in the fashion industry has increased during the past 5 years, as is evident in the
Tableau visualization (2) above. Although still relatively new, the use of AR and AI in the fashion industry, is on the verge of bringing about one of the largest digital evolutions of all time.

Visualization (3) shows the forecasted worldwide market size of augmented reality. These statistics were given in a report by Statista on AR and VR market. The forecast shows the global market size for augmented reality in 2016 to 2022. By the end of 2019, this market is expected to reach $20.4 billion in size. This statistic shows the potential of using augmented reality. Based on these figures, using AR platforms in the industry, and for brands to invest in such digital platforms, appears to be a fruitful decision for both the economy and the consumer.
The markets spread all over the world have turned the Fashion Industry into a global phenomenon - with some fashion markets having more effect on the industry than others. To see this theory the above visualization (4) made using Gephi, shows the market size of different countries in relation to their suspected sale contribution to the fashion industry. As we can see the biggest market for fashion is the European market, with the US market following closely. Based on these statistics, it can be said that these two markets have the most impact on the fashion industry. Both these markets start the trends - most of the brands which started a digital shift in the industry were based either in Europe or in the United States. All other nodes seen in this visualization are connected markets that have a smaller impact on the total fashion industry.
The visualization (5) using Gephi shows the interaction of different digital platforms in the economy and the inter-relation and impact on each other in the year 2018. The data taken from various studies (self-compiled) shows how consumer trend algorithms are related to the use of Augmented and Virtual reality, as well as Artificial Intelligence, with the entire chain being inter-connected. Social Media platforms play a crucial role in connecting all other digital platforms, in order to build a unique consumer experience.
The Visualization (6) shows the fashion industry in the year 2019, where the merchandising platforms are slowly moving towards digitalization. The visualization shows how consumers interact with merchandising and marketing strategies, and the impact it has on sales, product development and consumer experience.
Chapter Summary

An appraisal of the visualizations shows that different segments of the fashion industry are connected to each other. Each segment of the industry is affected by any kind of shift in another of these markets. This means that any digital shift in the industry, in one of the demographics of the market, will have an impact on the product, the consumer and the merchandising strategy.

Technology has always been a part of fashion, with enhancements in technological fields lifting the industry. This change has been steady, as most markets are not open to a digital change, which makes the already established market vulnerable. On the other hand, the fashion industry only exists due to consumer demand, where the main goal is to provide them with what they need and want, and to fill in the gap. This can only be achieved if the brands stay abreast of changing times.

The visualizations show the potential of Augmented Reality in the fashion market, forecasted growth in the use of AR platforms gives fashion brands a nudge to invest in 3D space and digital platforms. This should lead to more augmented and virtual merchandising strategies, if the brands want to measure up to consumer expectations for an enhanced user experience.
Conclusion

During the past decade, the role of the consumers has shifted in the Fashion Industry, with their ways becoming more dominant and active rather than the previous merely observant and passive. The simple buying experience no longer satisfies them, as due to the emergence of the new digital platforms and the technological enhancements, they are always looking for more exciting buying experiences, more user interaction and more enhanced products. The increased use of digital platforms in the fashion industry has empowered the consumers, who are now resultantly, better if not well-informed and up-to-date with what is going on in the world of technological advances. The consumer now cares about their own socio-digital presence in the world and making them more selective than ever. Thus, the most important challenge that fashion brands face today, is to fall short of consumer expectations. Since most consumers now use digital platforms to buy products, the brands need to step up their game and be more digital savvy, in order to build a good consumer-brand relationship. Fashion brands like Tommy Hilfiger, and Zara are setting a new bar both for Fashion Industry and the consumer, by introducing new product standards and experiences. If other brands, especially the luxury brands do not catch up to this uplift movement in the industry, they risk being perceived and marked as obsolete and stagnant, in a larger comparison.

As can be seen, only a handful of luxury brands and retailers of footwear, apparel and accessories are investing in making the buying experience for users, smoother, by investing in AR platforms, this is not because of the increase in the awareness of fast fashion. In order for the fashion brands to stay in touch with the consumers and the industry, they need to collaborate with digital platforms like Google, Instagram and the like- a solid collaboration of fashion and
technology will in turn, help to create a better product life cycle and more employment opportunities in this new sub-field of the economy. A lot of brands still seem to find it hard to let go of the old, set ways of using the same merchandising strategies for years, and are still hesitant to invest in this digital shift, as it were a delicate path to tread on.

Understandably so, many brands are still clinging onto the human element in the fashion industry. For a long time, humans have been working with machines and technology, and given the digital shift in the industry it does lead one to think of the consequences of having everything is in 3D space and the Virtual and Augmented Reality realm. The employees, the actual humans, will fear losing their jobs- but what if the fashion roles combine with the digital roles, would that create a new employment segment, or would it eliminate the human resource to make space for the new roles? This is something only the future can tell.

AR and AI is going to change the dynamics of the fashion industry- manufacturers, designers, buyers and consumers- the entire lot. This is clearly evident from the present use of AR platforms and Virtual platforms, which has led to the consumers becoming more empowered than ever before.

Today, Augmented Reality is more accessible to fashion merchandisers and brands. And, the consumers are easier to reach due to the accessibility and affordability of smartphones. There is a huge potential in using Augmented Reality to create different merchandising strategies, in order to create more and more sophisticated interactive user experiences. Although there may appear to be a significant number of pros and cons with respect to the digitalization of fashion, but the bottom line is, that the fashion industry needs a sustainable future and that for the time being appears to be in a mutual beneficial, inclusive relationship of man and machine, as it were.
This is an industry where on digital platforms, humans and technology can work together to create a socio-digital culture in fashion.

The collaboration of fashion and technology has not always been seamless. The sooner the fashion industry understands that there is a gap in the industry and that there is a potential in the market where Augmented Reality can be used to create more inclusive strategies, it would be easier for the fashion industry to make this digital shift. The shift towards using digital technology in fashion is not always flawless, with some strategies coming across as a gimmick. The consumers do sometimes feel that the brands exploit digital tools in order to display their technological enhancements, rather than providing ways to make the customer experience smoother. But this is untrue, as fashion starts from the consumer and ends with the consumer. If there is no one to cater to, then there is and can be no fashion. Trends start with the people; product development starts from people and merchandising starts and ends on people. Augmented Reality is being used to make fashion more accessible to the people. The future of fashion merchandising is to exploit AR platforms further, to make the whole buying experience digital. There is a lot of potential for AR not only in fashion merchandising on online platforms but in the showrooms- the Digital showroom, and augmented products in the market is the new black dress of fashion. It would be wise to remember that once our entire fashion industry goes digital, they will revert to the old ways, as consumer will start missing the human element in this new augmented 3D space.
Bibliography


https://thecurrentdaily.com/2018/03/01/gucci-spring2018-vr-ar-campaign/


https://hackernoon.com/augmented-reality-ar-fashion-brands-gear-up-for-a-digital-makeover-eb57cc738686

https://hackernoon.com/augmented-reality-ar-fashion-brands-gear-up-for-a-digital-makeover-eb57cc738686