THE DEVIL WEARS (AR-supported, blockchain-authenticated, sustainably-sourced) PRADA: *a Critical Examination of the Metaverse and Web3 as "Charismatic Market Trends" in the Post-Pandemic Fashion Industry*

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ABSTRACT —

The term "metaverse" gained widespread popularity in 2020 as companies explored the potential of augmented, mixed, and virtual reality technologies to create an all-encompassing virtual world. Similarly, the term "web3" captures an envisioned future iteration of the internet powered by decentralized blockchains. This thesis investigates these two internet imaginaries in the context of the global fashion industry during the COVID-19 pandemic and beyond. Chapter one explores how AR-supported digital fashion emerged as a means to address a crisis of everyday life, chapter two analyzes how blockchain technologies were utilized to address a crisis of control, and chapter three considers how both kinds of metaverse/web3 projects sought to address a crisis of environmental impact. The objective of this research is not to evaluate the success of fashion brands' metaverse or web3 ventures but to examine how the imaginaries surrounding them blend reactivity, proactivity, and charismatic speculation. To capture this amorphous mix of hype, speculation, uncertainty, and doubt, the author proposes the term "charismatic market trend" as a way of seeing the technological bubble and synthesize what it embodies about the market it seeks to innovate.

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For my angel Katie and in honor of Lavel, Devin, and D'Sean.

"We're literally hurling towards a new kind of existence.
A meta existence."
– Faith Popcorn

Introduction

Fashioning the Future: Trends, Charisma & Markets

On November 11, 2021, *Bloomberg Originals* released a twenty-one-minute

episode of the Business of Fashion show titled *Why the Metaverse is Fashion's Next*

Goldmine to its 3.4 million YouTube subscribers. The episode begins with a brief but

captivating series of photos of real people dressed in seemingly unreal clothing and

accessories. Then, a voice later identified as Imran Amed — the founder, CEO, and

editor-in-chief of esteemed fashion industry publication, The Business of Fashion

("BoF") — poses two provocative questions: *"Would you buy clothes that don't exist?*

And how much would you be willing to pay?" (Bloomberg Originals 0:01-0:06). Amen

then begins to explain an emerging phenomenon: conducting fashion business in "the

metaverse" and/or by leveraging "web3" technologies.

Welcome to the Future!

The term "metaverse" gained widespread popularity in the latter half of 2020 as a

call to create an all-encompassing, virtual world by leveraging "computer-generated,

networked extended reality… [including] all aspects of augmented reality, mixed reality

and virtual reality (AR, MR and VR)" (Pew Research Center 5). In October of 2021,

Facebook capitalized on this growing interest and rebranded to "Meta" — solidifying its

commitment to the metaverse "as the successor to the mobile internet" (Reality Labs).

Meta's founder and CEO, Mark Zuckerberg, claims that this next era of the internet will

feel "like a hybrid of today's online social experiences, sometimes expanded into three dimensions or projected into the physical world" (Meta).

Many fashion brands, both luxury and mainstream, initially assumed that this hybridity would be primarily experienced via gaming — with companies such as Gucci, Burberry, Tommy Hilfiger, Forever 21, Alo Yoga, Vans and Puma all launching their own spaces on the online game platform and game creation system, Roblox. For others, such as DressX or THE DEMATERIALISED, virtual garments supported by AR technology was the way to fashion the metaverse. Others, including Prada, Balenciaga, and Thom Browne saw avatar dressing as the appropriate way in — teaming up with Meta on a line of clothing for digital avatars (Yotka).

Regardless of medium, fashion-specific metaverse-based projects typically seek to reimagine the social and cultural value contained in physical clothing, primarily via self expression, for a persistent (imagined) virtual world. Though distinct in its motives and affordances, the metaverse is often discussed in conjunction with another internet imaginary: *web3*, which is generally based on the premise that "there's an alternative to exploiting users for data to make money" (Esber and Kominers).

In contrast to the current internet model ("web 2.0"), which relies on advertising and data collection to sustain itself, web3 is driven by a rewiring of "how information is [digitally] stored, shared, and owned" (Roose). Rather than service providers, tech giants, and other intermediaries "having full control of the underlying data, users [would] own whatever content they created… as well as digital objects they have purchased" (Esber and Kominers). This alternative vision is executed using decentralized Blockchains, or

the shared digital ledger systems used by cryptocurrencies like Bitcoin and Ethereum (Roose).

Despite Bitcoin's initial proposal in 2008, and its limited practicality as a form of currency in most cases since, the blockchain-supported cryptocurrency has persevered through countless cycles of hype and undergone endless changes in discursive framing. Nonetheless, it has proven to be a viable staging ground to debate the cultural role of money in society (Swartz, "What was Bitcoin, what will it be?" 1). Similarly, fashion was (and to some extent still is) highly interested in harnessing decentralized Blockchains to reconsider, reframe, and reimagine the cultural role of *fashion* in society. For example, brands like RTFKT and 9dcc have integrated blockchain-backed non fungible tokens (NFTs) into their business models (Bain), while software companies like EON and the Aura Blockchain Consortium have experimented with blockchain-run software to create Digital IDs, "product passports," and related services for fashion brands. Both types of initiatives aim to redefine and reinvigorate traditional and/or create new sources of value beyond materiality and craftsmanship.

In this thesis, I explore how the fashion industry experimented with and invested in a variety of metaverse-based and web3-supported projects. I argue that the moment should be read as the production of and betting on certain futures through charismatic market trends — rather than the rise and fall of a technological savior. Furthermore, I situate this future-making and speculative betting in the context of three key crises: a crisis of everyday life, a crisis of control, and a crisis of environmental impact.

In the following sections, I draw from existing literature in future studies, social studies of markets, communication and media studies, and science and technology studies

(STS) to define the "charismatic market trend" and construct a theoretical framework around it. I then explain why situating this particular charismatic market trend in the context of crises is a useful way to make sense of the moment. Finally, I conclude this introductory chapter by detailing my data collection process and analytic methodology.

"Charismatic Market Trends" as a Concept

Trends

To begin, I want to clarify my usage of the word "trend." I recognize that the term, particularly in the realm of fashion, typically connotes ideas of cyclical style and widespread popularity. However, I am not using the word to refer to web3 or the metaverse in the same way a fashion magazine might declare that bootcut or skinny jeans are "in" or "out." In this context of this research, a "trend" refers to a commodified unit of meaning and a marker of cultural change in a broader sense.

As Powers writes, trends are commodities "through which culture's lifespan is understood and circulated, bought and sold" (3). Therefore, a "trend does not exist unless something has transformed, will transform, or is in the process of transforming" (Powers 5). And so, "when trends become industrialized, marketed, and sold," when they function as commodities, "they become instruments to make meaning, and money, off the prospect of constant change" (Powers 5). It is through the changes brought about by each of the three aforementioned crises, then, that the metaverse and web3 become a means to marshal resources and attention to address concerns and project a new way forward.

However, even amid tremendous change, trends typically emerge from an existing set of norms, beliefs, and behaviors to "collapse the distance between the past, present, and future by showcasing how the world of tomorrow exists today — even if its existence

is secret from the mainstream" (Powers 6). Herein lies the charismatic component of web3/metaverse imaginaries.

Charisma

According to Morgan Ames, a charismatic technology is an "active subject within a sociotechnical web of other actors and imaginaries" (Ames 22). However, "in their promises of action… charismatic technologies are deceptive: they make both technological adoption and social changes appear straightforward instead of as a difficult process fraught with choices and politics" (Ames 22). Furthermore, such technologies "may promise to transform [users'] sociotechnical existence for the better, [but are] at heart, ideologically conservative" (Ames 23). Charismatic technologies reinforce "existing stereotypes, institutions, and power relations," and, therefore, confirm that the "ideological worldview of its audience is already right" through these implicit references (Ames 23). This "unchallenging familiarity" makes charismatic technologies so magnetic and endows them with the power to "appear unchangeable, inevitable, and natural" (Ames 23).

By leaning on the old and the ideologically resonant, the new and innovative feels like a progression, not a random aberration. This careful balance creates an allure that endows certain promises with staying power that can extend beyond capabilities of technology itself, or even persist after a project sputters out (Ames 23). Accordingly, successful metaverse/web3 projects demand a careful reflection on the characteristics that animate physical fashion and consumption alongside a thoughtful replication or reconfiguration of those elements in the digital sphere. In other words, projects with the ability to simultaneously replicate and reimagine the existing narratives and practices in

the fashion industry in a compelling, and seemingly new, way can be used to address pressing concerns while producing innovative futures that are still palatable to the masses.

Markets

Crafting and pitching these envisioned futures constructs both a *concrete* market, for the exchange of new goods and services with (perceived) value; and an *abstract* market, created and sustained by discourse, for those goods and services to articulate themselves, their value, and their legitimacy. The literal market demonstrates the cultural underpinnings of markets while the metaphorical illustrates how discourse serves as a cultural force that reflects and shapes technological development.

Therefore, both the words and actions surrounding the charismatic market trends of web3 and the metaverse create a range of possible futures to be invested in and experimented with by consumers and industry actors alike. The "market" component of the "charismatic market trend" is crucial, then, as it centers the role of cultural relevance and discourse while foregrounding that web3 and the metaverse, like all markets and business owners do, influence consumers to invest (time, money, or other resources) "by focusing on the [popular] meanings, images, and symbols that make a product or service appealing" (Wherry 17).

Markets, broadly defined, are sites wherein individuals "assume the roles of buyer or seller, third party monitors or regulatory enforcers" either formally or informally (Wherry 9). However, these sites are "not merely technical accomplishments; they are cultural intentions that are inculcated, enacted, and that must (their audiences) engross" (Wherry 3). The fashion industry, for instance, is a dynamic and culturally attuned

marketplace sustained by a network of individuals who "engage in activities collectively, share the same belief in fashion and participate together in producing and perpetuating not only the ideology of fashion but also… the continuous production of fashion" products (Kawamura 39).

This collective engagement helps determine "a creed, a set of principles about how one should behave and what the various modes of behavior mean" (Wherry 9) — explaining why luxury brands may function under an entirely different set of norms and logics of operation than fast fashion ones. However, there is no broad consensus about how an industry, fashion or otherwise, should be organized (Wherry 3). Consequently, markets are "assaulted, from time to time, by conflicting logics" (Friedland and Robertson 37).

The development of not only an actual market to buy and sell NFTs, virtual garments, and other digital assets but also to discuss their role and relevance emerged in response to a particular cultural moment of assault — where industry that was long sustained by the exchange of material goods was asked to contend with the proposition of dematerialized production at scale. Therefore, this moment's provocations extend beyond the mere creation and circulation of new commodities. Participating in this moment also invites speculative discussion and predictive future-making.

Discourse, Speculation, and Future-making

I borrow Meryl Alper's conceptualization of "future talk" to theorize this discursive market. According to Alper, "different discourses of the future and of technology co-constitute one another to bring about particular future orientations" (Alper 716). This interplay, between "social factors and technological forces," serves to

"actively promote and prevent certain futures from becoming material realities" as these discourses ultimately inform both imagined and realized visions of what's to come (Alper 717). Therefore, the way we — as consumers, executives, tastemakers, skeptics, or enthusiastic disciples — talk about the future of fashion, of everyday social life, or of the web are not just reflections of our ideas and beliefs, but also a direct influence on what might actually materialize in the future.

Simply stated, this co-constitutive discourse creates a market for futures by inviting industry players and consumers to invest (attention and resources) in certain charismatic market trends now in the hopes that they materialize down the line. It is crucial to note that this invitation is inherently speculative — a characteristic it shares with the 2017 Initial Coin Offering (ICO) bubble.

In 2017, countless blockchain-backed projects were financed via ICOs as investors were attracted to not only a potentially sizable return but also an opportunity to have a hand in the making of the future through ICOs. To them, funding blockchain technology was not just a means to get rich, it was also an invitation to help build the new economic order. Consequently, in that year alone, ICOs raised an estimated $5 billion (Swartz, "Theorizing the 2017 Blockchain ICO Bubble as a Network Scam" 1). Although ICOs resembled traditional stocks in the fact that they were worth "whatever the market would bear for them," (Swartz, "Theorizing the 2017 Blockchain ICO Bubble as a Network Scam" 3) ICO tokens did not constitute an ownership share in the company itself like traditional stocks do. These tokens were only of value, "in theory, because one day the blockchain product that uses them would be useful" (Swartz, "Theorizing the 2017 Blockchain ICO Bubble as a Network Scam" 3). However, unfortunately for

investors, the vast majority of these ICOs turned out to be scams pushing worthless cryptocurrency tokens and the transformative technologies they pitched never existed (Swartz, "Theorizing the 2017 Blockchain ICO Bubble as a Network Scam" 1).

While I would hold off on calling web3 or the metaverse outright scams just yet, I would argue that they too are driven by hype and hopeful promises of future utility and value. Like ICO pitches, different attempts to respond to crises or reimagine the driving narratives and standard practices through web3 and the metaverse can be understood as attempts to "summon an alternative techno-economic future in the present" (Swartz, "Theorizing the 2017 Blockchain ICO Bubble as a Network Scam" 10) by promising a range of compelling possible outcomes in the future. Consequently, web3/metaverse fashion projects offer brands — luxury and mainstream, old and new — with a chance to not only react to external crises, but also generate new market opportunities.

"Charismatic Market Trends" as a Framework

Deploying the term "charismatic market trend" as a theoretical framework has two significant strengths. First, it is able to acknowledge that even as money poured in and hype swelled, "the metaverse" remained somewhat elusive and difficult to define. According to Cathy Hackl, exalted metaverse expert and tech futurist, although "no official definition yet exists for the metaverse… companies can't afford to wait until one does or the metaverse fully evolves to start experimenting and investing in it" (Hackl). The charismatic market trend, as a way of seeing, offers a lens to look through this amorphous mix of hype, speculation, uncertainty, and doubt.

This framework, therefore, supports asking companies like Meta to define today's online social experiences and how they will "expand" in the near future or interrogate

how Roblox explains what is inherently new about using online games to connect with others or express a multifaceted identity (D'Anastasio). However, rather than assessing the validity of responses this framework acknowledges that the absence of a single, agreed upon answer is what moves the discourse forward. Simply stated, it is in this uncertainty that fashion brands are called to act, imagine, and speculate.

The second key strength of the charismatic market trend lens is its ability to see around assessments of the viability or market success of any one brand's metaverse or web3 experiment(s). Instead of looking at individual consumers and their response to fashion in the metaverse or enhanced by web3 tools, my use of this framework looks at how consumers are constructed and imagined. In other words, by framing web3/metaverse initiatives as charismatic market trends, I shift my attention away from consumer reception or adoption and towards the promises and proposals put forth by brands attempting to bring non-physical goods and unique digital capabilities to the marketplace.

The goal of this research is, then, to use different artifacts to consider how the technoeconomic and sociocultural imaginaries surrounding the metaverse and web3 blend reactivity with proactive and charismatic future-making; how they at once became a vehicle through which brands could address pressing concerns and a provocation to build new industry practices and narratives. This goal is well supported by reading this particular charismatic market trend through three distinct, yet interrelated crises.

First, the confusion and chaos of life during a global pandemic invites this kind of imaginative speculation with the hopes of eventual normalization even beyond crisis management. Therefore, chapter one, *A Crisis of Everyday Life*, explores how AR-

supported digital fashion emerged as a solution to accommodate the new normal ushered in by the COVID-19 pandemic while also advancing an understanding of fashion as a system of meaning that can still meet self-extension and self-expression needs.

Should this understanding stick, there is then a need to regain control of branded production and authorized use in this chaotic landscape. And thus, in chapter two, *A Crisis of Control*, I consider how fashion-specific web3 initiatives utilize blockchain technology to restore control in the face of informatization and a booming counterfeit market. Furthermore, this departure from materiality invites the consideration of the "greenwashing" capabilities of dematerialized production and the technology that makes it possible. Therefore, the final chapter, *A Crisis of Environmental Impact*, explores how web3/metaverse fashion projects construct charismatic tales around dematerialization and transparency, obfuscating important truths, to present sustainable alternatives to or add-on services for the traditional fashion industry. To conclude, I broadly consider how charismatic market trends survive the rise and fall of the technologies they animate and reappear time and time again.

Methodology

To gain a holistic understanding of the dynamic and evolving nature of fashion's relationship to web3 and the metaverse amid these ongoing crises, I built a diverse and extensive corpus of materials over the course of a year and a half. The selected materials were produced and published during the rise and fall of the industry's foray into the digital, which began in early 2021 and continues to the present day. My data collection process resembles the integrated cultural-industrial method of analysis deployed by John

Thornton Caldwell in his book, Industrial Reflexivity and Critical Practice in Film and Television.

Caldwell's "toolkit" leverages four modes of analysis: "textual analysis of trade and worker artifacts; interviews with film/television workers; ethnographic field observation of production spaces and professional gatherings; and economic/industrial analysis" to uncover cultural practices and belief systems (Caldwell 5). To a similar end, my analysis draws on a range of sources, including popular and trade press, court proceedings (Hermes International et al v. Rothschild), press releases, whitepapers, and case studies — all intended to complement each other and jointly advance my goal of developing a comprehensive view of the web3/metaverse moment.

I carried out textual analyses of over 150 journalistic pieces from popular and industry press sources, including Wired, Vogue Business, Harvard Business Review, BoF, Rolling Stone, Bloomberg, and others. I examined dozens of trend forecasts and industry reports from leading firms such as McKinsey & Company, PriceWaterhouseCoopers, Wunderman Thompson, and J.P. Morgan, as well as press releases announcing new startups and brand collaborations. I also viewed hours of YouTube videos and podcast episodes featuring futurists and fashion industry innovators such as Cathy Hackl, Ian Rodgers, Faith Popcorn, and Benoitt Pagotto. To further explore the perspectives of these thought leaders and their colleagues, I also engaged in several informal multi-sited ethnographies (Marcus) by examining extensions of their work including personal websites, LinkedIn posts, and Tweets.

Additionally, I employed Ben Light, Jean Burgess, and Stefanie Duguay's approach to the study of mobile apps, supplementing my analysis with "walkthroughs" of

eight key projects, including dressx.com, thedematerialised.com, emperiavr.com, rtfkt.com, eon.com, and 9dcc.xyz.

My interpretive analysis of this visual and textual material utilized a rendition of the Critical Technocultural Discourse Analysis (CTDA) approach as defined by Andre Brock. Brock's approach to the study of digital phenomena, artifacts, and culture draws on an understanding of technology "as a construct of technical artifacts (e.g. knowledge, skills, tools, and resources), technology practices, organizations, actors (e.g. users, consumers, and professional organizations), and technology beliefs" (Brock 1016) to explore the "the production of meaning through information technology practice and the articulations of information technology users in situ" (Brock 1013).

However, my implementation of CTDA is somewhat an inversion of its design. Rather than focusing on how "technology users perceive, articulate, and ultimately define the technocultural space in which they operate and exist" (Brock 1016), my examination asks how the technocultural spaces perceive, articulate, and define *themselves*; furthermore, how they do so in relation to the post-pandemic contexts in which they are imagined and enacted.

These articulations of purpose and value were found in a variety of sources ranging from official company documents including vision statements and about pages to informal channels such as interviews with founders and social media posts. In each, I maintained a critical eye towards implicit and explicit claims about proper and improper activities or use cases, how cultural influences are made salient, and what priorities are clearly demonstrated. The following three chapters are dedicated to my findings.

Chapter One

A Crisis of Everyday Life

The COVID-19 pandemic ruptured our sense of normalcy. Sudden stay-at-home orders and social distancing restrictions forced people all over the world to rely more heavily on digital communication tools to work, learn, and socialize. Furthermore, countless businesses shut down, global supply chains were disrupted, and many people were forced to confront the reality of their consumption habits.

As these changes wiped social calendars clean, Zoom became our primary means of communication, and button downs paired with pajama pants became the work from home uniform, workwear, formalwear, and special occasion dressing were rendered nearly obsolete. This sudden shift, from slacks to sweats, presented a large sector of the fashion industry with a daunting challenge: *how do we continue to sell new clothing, especially formalwear and luxury, to people who don't leave the house?*

However, as the boundaries between public and private space softened — with happy hours, global conferences, and telemedicine sessions conducted virtually from home — the fashion industry was also presented with a chance to explore new market opportunities in this emergent digital landscape by mirroring this blend of public and private space.

In this chapter, I discuss how AR-supported digital fashion emerged as both a promising solution to the challenges of this new reality and a means to innovate beyond it. In order to do that, I argue that industry actors working to normalize dematerialized

fashion had to first reconcile threats to our ontological safety and sense of reality —

which they did by betting on the eventual realization of a "cocooned" future. Then, they

had to redefine "fashion" in a way that prioritized meaning over materiality — thereby

allowing AR-supported, dematerialized garments to be perceived as valuable. However,

this charismatic proposition still relied on the fundamental idea that fashion serves to

meet dynamic self-extension and self-expression needs.

To illustrate this process, I begin with a brief discussion of ontological security,

cocooning, and the mediatization of the home. I then lay out a working definition of

fashion in a digitally cocooned world, where meaning trumps materiality and the self is

more malleable than ever before. I conclude with a short case study, analyzing DressX

and its innovative approach to digital fashion.

Ontological security and "Cocooning"

According to sociologist Anthony Giddens, to be "ontologically secure" is to

possess, on an "unconscious" and "practical consciousness" level, answers to four

fundamental existential questions (Giddens, 47). These questions address existence itself,

human life and death, other persons, and self identity. Giddens argues that building habits

and routines are the primary means through which we answer these questions;

furthermore, he contends that maintaining such routines acts as "crucial bulwark against

threatening anxieties" (Giddens, 47).

In other words, security is achieved through creating and maintaining a sense of

predictability and stability in daily life through routines, rituals, and habits. However, the

onset of the COVID-19 pandemic threw all this off balance. Routines were destroyed,

stability was hard to come by, and our collective sense of normalcy was threatened. In an

attempt to address these sudden reconfigurations and accommodate threatened consumers (as imagined by companies and brands), proponents of digital fashion accepted "cocooning" discourses as a means to restore balance and security.

According to Faith Popcorn of marketing consultancy *BrainReserve*, individuals and industries should respond to these moments with a tool she named in 1981: "Cocooning," or protecting oneself from the harsh and unpredictable realities of the outside world through insulating and creating a sense of "homey comfort as a balm against the stresses of daily life" (Popcorn, A New Kind of Cocoon 2). Therefore, for Popcorn, neither the seemingly insurmountable challenges nor the glimmering opportunities that arose in 2020 are isolated consequences of social distancing regulations or mask mandates brought on by the pandemic. Instead, COVID-19 and its many impacts have acted as an accelerator, pushing us to a virtual future that was already on its way.

The Virtual future and Digitized Home

As we move towards this "virtual future," the modern home "must adapt to be all things: office, gym, restaurant, art studio" while serving as the center for our lives as lived through "screens, apps, [and] streaming" (Popcorn, "Welcome to 2030."). It is crucial to note whether industry actors sought out Popcorn herself or not is neither here nor there as her predictions and publications are emblematic of the broader sentiment among journalists and industry experts in the digital fashion conversation. According to J.P. Morgan, for example, the pandemic only fueled the already escalating digitization of our lives, leading to an "explosive interest" in the metaverse as a site for "persistent and multi-purpose online engagement" (J.P. Morgan 5). Similarly, for analysts at New York-based global marketing communications agency, Wunderman Thompson, "as more of our

lives are spent online, it's becoming harder and harder to distinguish "real" life from life lived digitally" (Wunderman Thompson Intelligence 5). Therefore, for many in the fashion industry this moment is first about "understanding how the blurring of physical and digital worlds will change our definition of what's real." (Bloomberg Originals 0:37-0:45).

Cocooning discourses, intentionally resemblant of Popcorn's predictions or not, and the impact of digitization on the home is not limited to journalists and industry experts. Media studies scholars like Corinna Peil and Jutta Röser have also noted the significant impact of media technologies on the domestic realm. According to Peil and Röser, the presence of media technologies in the domestic realm have not only "contributed to a rearrangement of the domestic media ensemble and to a realignment of family interactions, routines and activities within the social fabric of the household… [but] also taken part in the further erosion of the already porous boundaries between public and private life" (Peil and Röser 233).

This ongoing blurring of lines between public and private, inside and outside combined with stay-at-home orders issued at the height of the pandemic is the first key contributor to the perfect storm of simultaneous reactive crisis management and proactive future building. The second is the use of this rhetoric to advance a definition of "fashion" that enables dematerialization through the prioritization of meaning over materiality while maintaining physical fashion's claim on self extension & expression.

Meaning > Materiality

In order to shape fashion's fate in a cocooned, digital world, industry actors had to accept and advance an understanding of fashion as a system of meaning, rather than a

purveyor of purely physical goods. Such an understanding takes "clothing" and "fashion" as distinct, with fashion referring to "an immaterial system of meaning created and applied to a variety of primarily consumable material goods" (Lascity 15). Clothing, in turn, serves as a mere raw material for this system.

It is important to note that, per this definition, meaning is to be carried through and imposed upon consumable, *material* goods. Therefore, digital fashion's lack of materiality threatens its ability to be seen as another raw material in the larger fashion system. However, the aforementioned blurriness between digital and physical reality invites a nuanced take on the role of materiality, or the lack thereof, in contemporary consumption.

For media studies scholar Beth Coleman, the physical/digital blurring results in what she calls "x-reality," or a "continuum of exchanges between virtual and real spaces" (Coleman 4). Consequently, as we continue to exist in a cocooned, digital world marked by a seamless integration of technology and networked media, our possessions are able to occupy spaces "between the imagination and the material" (Denegri-Knott and Molesworth 110) along the x-reality continuum. However, these possessions (i.e.. digital garments) "not only reside in the consumer's mind, but [are] experienced as owned and used within the parameters of specific digital virtual spaces" (Denegri-Knott and Molesworth 110**)**. In other words, these objects occupy "mediated spaces where consumers actually engage with digital virtual objects which are desired, owned, and experienced" (Denegri-Knott and Molesworth 110).

The consumption of digital goods, therefore, supports Fleura Bardhi and Giana Eckhardt's vision of consumption on a spectrum from solid to liquid, with liquid being

that which is "ephemeral, access based, and dematerialized" (Bardhi and Eckhardt 582). In explaining their proposed consumption orientation, Bardhi and Eckhardt define dematerialization as "using fewer or no materials to deliver the same level of functionality" (Bardhi and Eckhardt 586). This departure from materiality creates a foundation upon which designers and brands can create digital goods to be bought and sold, as long as the role of functionality is not overlooked.

This means that dematerialized consumption persists if consumers are met with an attractive level of functionality — so goods to be consumed virtually need to *do* something. For digital fashion advocates, these virtual garments allow consumers to continue to use clothing to extend and express themselves to the outside without leaving the home. This vision of digital fashion advances an understanding of the self as malleable (Aaker) and constructed through possessions and adornments (Belk).

AR-assisted digital fashion leverages this relationship, between consumers and that which they possess, through the production of dematerialized garments that give individuals a digitized experience of self extension and expression. In fact, the augmented aesthetic possibilities (as items are unrestrained by materiality, engineering, weight, or other considerations) provide additional opportunities for individuals to construct a "self that can adapt to various social roles and contexts, and fulfill their need for self-presentation (Aaker 45) in ways physical clothes cannot. However, these are not just theoretical concepts — they are being realized and renegotiated by virtual fashion retailers like DressX.

Fashioning the Cocooned Everyday: the Case of DressX

On March 14th, 2023, DRESSX announced that they had successfully raised $15 million in Series A funding from investors, including Greenfield Capital, Slow Ventures, Warner Music Group, Red DAO, and others (Crunchbase). In a LinkedIn post detailing what the funding will be used for, the DressX team solidified a core part of their vision. They write:

> *"Fashion has always been a core part of someone's identity and a way to express yourself. As we spend more and more time in virtual environments, this will equally translate beyond the physical sphere... We are very excited to see how this space will evolve over the next 5-10 years and we believe DRESSX will be at the forefront of shaping and driving change... With DRESSX, we aim to enable an infinite sustainable metacloset for our lives in the Metaverse"*

Fig. 1 – FLASH NEWS ⚡: DRESSX announces the successful raise of USD 15 million Series A round 🚀

(DRESSX, "DRESSX on LinkedIn")

According to DressX developers and investors, digital fashion is the best (and possibly the only) way to own and elevate one's digital identity. This statement projects a distinct vision of self-presentation as it extends beyond the physical realm and into the virtual world. Moreover, it positions DressX at the forefront, empowering the brand to shape the future of self-expression amidst the shift to cocooning and x-reality.

All dressed up with everywhere to "go"

DressX offers a solution for fashion in a cocooned world by redefining what it means to "go out." According to the third requirement for DressX designers, garments available via the virtual retailer are designed for capturing photo and video content and "going out" to social media.

3. We remember that clients are not going to wear it (as of now) to the plastic computer game, but they will wear it to 'go out' to social media - they will post it on Instagram first of all. That's why it should naturally match the visual language of the platform.

Fig. 2 – Requirement #3
(DressX. "DRESSX Check List for 3D Designers Requirements")

A good snow boot clearly protects its wearer from inclement conditions; the usefulness of a dress made of fire, only to be worn using an AR photo or video filter, however, is a little less obvious — this emphasis on taking photos and recording videos for social media, namely Instagram, clears up that confusion. Therefore, while these 3D designers are not working with fabric and trimmings, their outputs are to be experienced as owned and used within the parameters of social media, mobile dating apps, video streams, and conference calls.
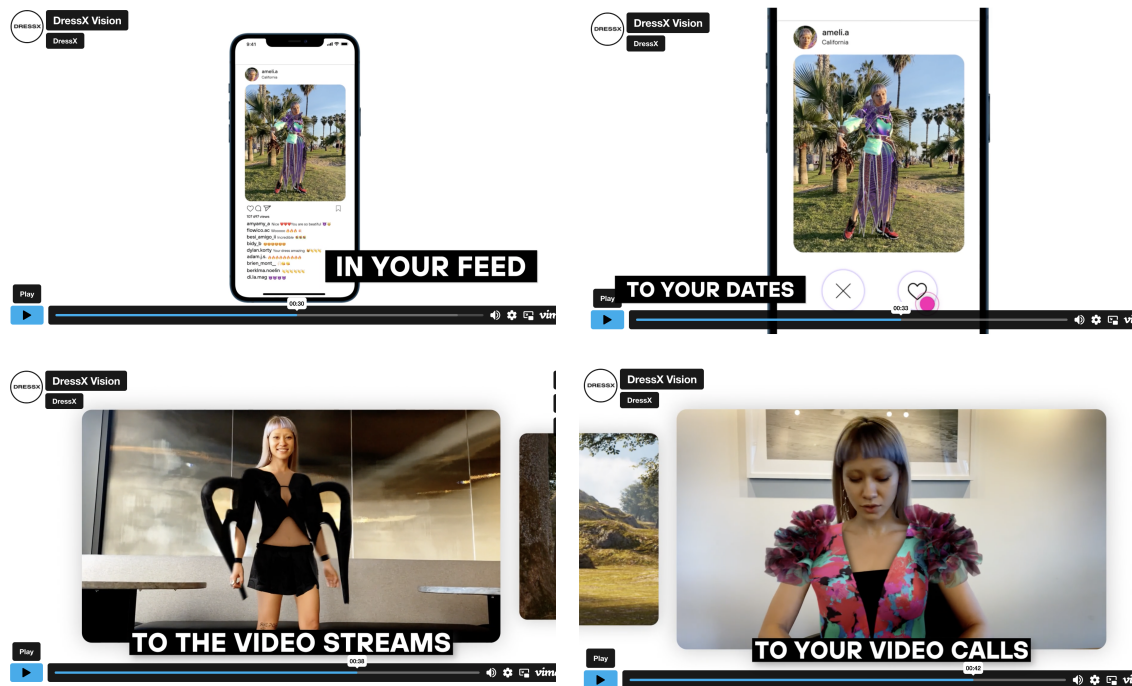
Fig. 3 – DressX Vision
(DressX. "DressX Vision")

This departure from traditional ways of thinking about what clothing is for and how you wear it responds to key crises as everyday life comes to a screeching halt amid a

global pandemic. First, dematerialized production circumvents the logistic gridlock — a crippling reality of the post-pandemic supply chain (Business of Fashion and McKinsey & Company, "State of Fashion 2022" 33). Second, The DressX can offer free and low-cost products that look and function just like for purchase offerings — giving people something to play with even as demand for non-essential fashion consumption diminishes due to "restrained spending power amid unemployment and rising inequality" (Business of Fashion and McKinsey & Company, "State of Fashion 2021" **25**). Finally, clothes that lack a material form are unimpacted by stay-at-home orders as AR allows you to wear your dress made of flowers or glass from the comfort of your living room — thereby not only addressing the challenging realities of cocooned life but also innovating for the digitized home. With DressX, getting dressed for a fabulous event requires neither an actual event nor much time and effort. According to the website all you have to do is take a high-quality photo in natural light, with "uncovered parts," wearing fitted clothes you already own.

Fig. 4 – How to wear DressX
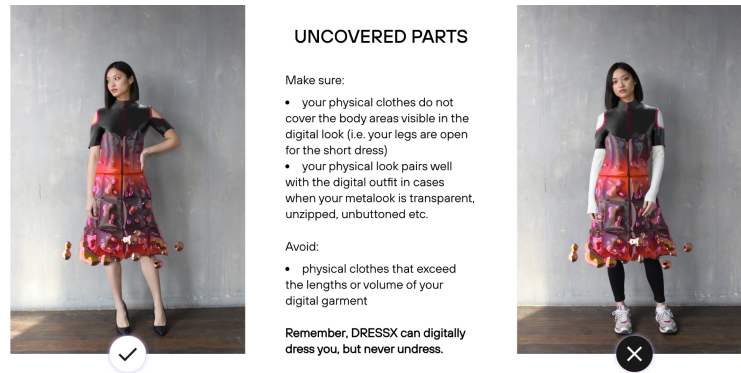*(DressX. "How to Wear DRESSX and Digital Fashion.")*

The DressX model demonstrates an understanding that the world has changed, while catering to consumers as if their appetite for self extension and presentation has not. In other words, the clear articulation of practical, at-home use cases for virtual garments simultaneously addresses concerns about supply chain disruption and decreased demand while recreating the self expression and extension possibilities afforded by physical clothing in public space via virtual clothing in private space. The DressX vision of the future is, therefore, able to accommodate a cocooned life, where individuals spend significant amounts of time inside their homes. Ultimately, this AR-supported digital fashion retailer takes fashion as purveyor of meaning, not materials, to maintain the industry's claim on self-expression and extension in an era of digitization and cocooning.

Chapter Two

A Crisis of Control

The fashion industry was propelled into its web3/metaverse moment not only in response to the changing state of everyday life, but also as a means to address the ongoing need for regimes of ownership, authorship, and authentication. Should industry actors proceed with an advancement of the understanding that fashion exists as a system of meaning, as explicated in the previous chapter, the consequences of informatization cannot be ignored.

Simply stated, the informatization of fashion, specifically of the luxury sector, is evidenced by a shift in emphasis from couture fabrication to branding. This shift is illustrated by trends including the reliance on global mass production, the implementation of celebrity collaborations and partnerships, and the proliferation of logomania. However, this makes branded fashion particularly rife for counterfeiting — as the only thing to be duplicated is the appearance of products, rather than their fabrication and quality, making unauthorized usage of the brand easier and more commonplace.

Consequently, Walter Benjamin's meditation on the loss of "aura," as it applies in the context of the reproducibility of the brand, becomes a key consideration as value cannot solely be maintained via signs and signifiers in this marketplace, where mass reproduction is rampant and values of access, immediacy, mobility, and digitization reign supreme (Bardhi and Eckhardt, Bauman). As a result, industry actors must construct

regimes to control uses of the brand and design mechanisms to identify unauthorized uses, both digitally and physically.

In this chapter, I argue that web3 initiatives, particularly ones that utilize blockchain technology, emerged as a charismatic technology, capable of doing just that. In other words, the blockchain was pitched as capable of restoring power amidst a loss of control in a moment of accelerated informatization. This erosion of control, specifically over uses of the brand, is most clearly demonstrated by the increasingly accessible global flows of counterfeit goods.

Blockchain implementations, therefore, serve to not only regain control in the present (where counterfeiting is rampant) but also to establish systems of control for an envisioned future (where digital luxury items are commonplace). I begin this chapter with a discussion of informatization and Benjamin's theorization of the aura and authenticity in the context of contemporary branded fashion. I then discuss the post-pandemic uptick in counterfeiting and its key drivers. Finally, I offer two case studies, exploring different blockchain-backed fashion projects and their charismatic ability to address concerns in present and future scenarios.

The Death of the Aura and the rise of Informatization

According to Walter Benjamin, mechanical (as opposed to manual) reproduction ushers in a radical shift in our understanding of value and authenticity as it changes who has the power to own and to author cultural artifacts. The advent of photography and recorded sound, therefore, reconfigures relationships of proximity and distance (Sherman 30) as cultural artifacts can be endlessly reproduced and distributed. However, "even the most perfect reproduction of a work of art is lacking one element: its presence in time and

space, its unique existence at the place where it happens to be" (Benjamin 20). Consequently, Benjamin contends that artifacts are divorced from their "aura" in an age of mechanical reproducibility as rapid replication "detaches the reproduced object from the domain of traditions" by prioritizing "a plurality of copies [over] a unique existence" (Benjamin 21).

This withering of the aura both challenges the value and uniqueness of cultural artifacts and presents opportunities for democratization in a world of mass production. Furthermore, this detachment, through endless reproduction, is emblematic of the process of informatization, or the transformation from industrial society to information society (Rodgers 73). In fashion, this detachment of the aura, pivot away from manual production, and move towards informatization manifests in the endless reproducibility of the brand — authorized and unauthorized.

According to Sarah Banet-Weiser, the brand exists as an emblem — carrying with it a set of experiences and stories that, when successfully passed along to the consumer, "surpasses simple identification with just a tangible product" (Banet-Weiser 4). Hereafter, the brand becomes a "familiar, intimate, personal… story with a unique history" wherein individuals are invited to "weave their own stories" (Banet-Weiser 4). Such stories are woven by "companies, the culture industries, intermediaries (such as critics and retail sales people), and customers (particularly when they form communities)" (Holt 3). Brands ascend to "icon" status when these tales become widely regarded as "the most compelling symbol of a set of ideas or values that a society deems important" (Holt 1).

A branded product is, then, a mere "conduit through which consumers can experience [these] stories" (Holt 36) as it is the brand that imbues meaning. It is through the brand, not the product that a consumer becomes the "kind of person" who carries Channel rather than Coach, wears The Row instead of LaQuan Smith, shops at Bergdorf Goodman rather than Belk. The brand, therefore, is the vehicle through which meaning is made and delivered (even if detached from a material form) — hence why DressX collaborates with iconic brands like Adidas and Tommy Hilfiger. However, this construction invites the same meaning to be associated with *falsely* branded fashion.

Whether crafted in a Parisian atelier and sold at top dollar in a luxurious boutique or cranked out of a factory and flogged for cheap by a street vendor, the branded story of the Hermès Birkin or Chanel tweed skirt suit remains. This is often precisely why fakes are sought after — they can carry the same message without carrying the hefty price tag. This demonstrates the tension laid out by Benjamin: the mechanical reproduction of branded fashion is at once democratizing and erosional.

Consequently, brands must reconcile the fact that they both accelerate this process and suffer its consequences. Luxury fashion companies mass produce their own goods, and thus circulate the (indented) experiences and stories via the affordances of global low-cost production; but counterfeiters can too mass produce, thereby circulating meaning through knock offs. In the following section, I map some of the key drivers of the increased circulation of counterfeit branded fashion during the COVID-19 pandemic.

The counterfeit renaissance

While counterfeiting is hardly new, its recent surge in popularity can be attributed to three primary factors. First, the increased prevalence of luxury goods on social media

has increased peoples' knowledge of and desire for designer fashion (Chen). This increase further solidifies the relationship between the brand and that which it signals, as it suggests luxury fashion (both real and fake) largely exists to be documented on social networking sites like Instagram or TikTok— where users can "weave their own stories," assisted by branded goods, through content creation.

Second, the incessant escalation of prices (Kagan) has dissuaded many from purchasing authentic goods; furthermore, changing attitudes about fakes generate excitement and subvert common expectations of authentic luxury (Chen). As of October 2022, #DHgate, primarily linking "haul" style videos of users sharing their best dupes and favorite sellers, had over 3 billion views on TikTok (Chen). As content creators rave about "the quality and attention to detail of their new fake Gucci bag or Jordan sneakers," they undermine assumptions that high price tags reflect better quality and implicitly assert that brand values can be conveyed via inauthentic, unauthorized uses of the brand materials like logos, colors, and iconic styles (Chen).

Third, Chinese e-commerce websites such as AliExpress, Alibaba, and DHgate have facilitated seamless connections between shoppers and wholesale manufacturers — making the acquisition of knock-offs easier than ever before (Chen). Additionally, as more luxury brands move manufacturing to Asian factories, the simplified acquisition of dupes from Asian wholesalers helps fuel the belief among some that replicas may come from the same manufacturers as goods from top brands — undermining luxury's claim on craftsmanship (Chen).

Furthermore, the pandemic was said to be a "perfect storm" for counterfeits as tightened budgets forced a reprioritization and thwarted brands ability marshal resources

and attention to anti-counterfeiting efforts in order to stay afloat in turbulent times (Hall).

In this somewhat vulnerable position, luxury brands found themselves under attack on

multiple fronts. They had to contend not only with knockoff bags and belts, but also more

creative and subtle, yet equally unauthorized, branded fakes — with protective "face

masks with fashion label logos [being] a particularly popular sub-genre" during this time

(Hall).

Regardless of form, the ease with which goods can be copied and distributed at

scale (especially in the wake of a global pandemic) invites brands to think about how

they can exert control over their branded production. Therefore, should industry actors

continue to accelerate this process of informatization through the advancement of an

understanding that the value of fashion is not solely determined by its physical qualities

(thereby enabling the sale of purely digital garments) then they must also contend with

the shift (ushered in by the informatization of fashion) from control via materiality,

design, or craftsmanship to control via intellectual property enforcement, authentication,

and provenance. Furthermore, should they bet on the eventual actualization of a future

where digital fashion becomes commonplace, they must design mechanisms that enact

this kind of control in the digital realm as well. In the final section of this chapter, I offer

two case studies where blockchain technologies present a solution for scenarios in the

physical and digital, present and (imagined) future.

In defense of the informationalized brand: Aura Blockchain Consortium and THE DEMATERIALISED

Reproducing the aura in the real world through digital IDs

In 2021, in a rare meeting of minds, LVMH, Richemont, and PRADA Group, banded together to create the Aura Blockchain Consortium. Together, world's largest competing luxury conglomerates, imagined a robust, blockchain-based system to ensure authenticity, increase supply chain transparency, facilitate the transfer of ownership, foster client relationships, and secure data ("Customer Journey – AURA"). Their proposed system hinges on the implementation of digital identifiers, such as QR codes or NFC chips, that are then validated using a private blockchain. Consequently, these digital IDs serve as immutable proof of authenticity and provenance ("Customer Journey – AURA").

According to a blog post on the Aura website, widespread adoption of such a system would not only make the authentication process simpler and more accessible as verification tools are built into the products themselves, but also alleviate counterfeiting concerns as dupes would not have the proper digital identification ("Authenticating Luxury Goods with Blockchain"). Furthermore, by building the digital twin into the product, the Consortium ensures that value can be stored and extracted at multiple points throughout the product's life cycle — from pre-manufacturing to after-sale. Should a repair or transfer of ownership occur, the digital IDs, supported by a Quorum permissioned blockchain, can be updated to reflect the items unique history ("Solutions – AURA").

This value proposition supports Benjamin's theorization of authenticity. For Benjamin, the "authenticity of a thing is the essence of all that is transmissible from its beginning, ranging from its substantive duration to its testimony to the history which it has experienced" (Benjamin 21). Therefore, while a Loro Piana cashmere coat is mechanically reproducible, and can be photographed or dubiously replicated, only the *real* one (manufactured and sold by Loro Piana) is outfitted with the proper digital ID that contains the knowledge of its beginning, testimony, and history. This value proposition also illustrates the charismatic market trendiness of blockchain-supported digital IDs for fashion.

According to Cartier's CEO, Cyrille Vigneron, "Blockchain is a key technology for the future of customer service, partner relations and traceability… And that's why we would like to invite the industry to join this new consortium, to collaborate in developing this new technology" (Aura Blockchain Consortium 1). Like the motiving claims in 2017 ICO pitches, this call to join the Consortium, and have a hand in the shaping of the "technology for the future," leans into a carefully constructed charisma.

First and foremost, as all charismatic technologies do, the Consortium's private blockchain maintains an ideologically conservative stance by preserving the existing power dynamic. By using Aura's services, brands still retain, or even strengthen, ownership and authorship. However, Aura's promise is revolutionary. The industry has long contended with counterfeiters and the unique aura has been jeopardized since the invention of the camera, and alas, *this* is the ultimate solution!

Second, the presentation of this solution is somewhat misleading. As Morgan Ames notes, charismatic technologies are inherently deceptive as they present

"technological adoption and social changes [to be] straightforward instead of as a difficult process fraught with choices and politics" (Ames 22). Accordingly, the Consortium's site ameliorates concerns about friction and barriers to entry. They claim that "all complexity is abstracted by Aura Blockchain Consortium and any developer can easily and rapidly handle all interactions with smart contracts" ("Solutions – AURA"). However, this does not make technological adoption, or the ushering in of alleged changes, frictionless in practice. For example, what about goods that have already been manufactured without a built-in identifier, how do they participate in this future? Or how does the Consortium manage consumers who do not input information that accurately reflects the state of their garment? Nevertheless, the vision animating the Aura Blockchain Consortium's claims has been invested in by major fashion brands like Cartier and non-fashion brands such as Mercedes Benz and Hennessy ("Members – AURA") because the promise of restoring power and brand authorship in the age of informatization is a tremendously attractive one.

Enacting mechanisms of scarcity and authenticity in the digital world through NTFs

According to Marjorie Hernandez, co-founder of THE DEMATERIALISED ("DMAT"), as we continue "transitioning more and more into the virtual world, we will start consuming digital sneakers, digital makeup, digital jewelry." This transition, she claims, will be "the biggest revolution the fashion industry has seen so far" (Bloomberg Originals 12:10-12:43). In an attempt to generate value in this revolution, DMAT, like DressX, sells virtual garments to be worn "on your real self through an AR filter" or on

your avatar in select computer games (Bloomberg Originals 11:23-12:00). However,

DMAT takes things a step further by authenticating every garment with an NFT.

THE DEMATERIALISED are creating a new reality for fashion.

Our purpose is to converge and nurture the emerging digital fashion ecosystem providing viable new revenue streams and visceral experiences with a Web3 marketplace for authenticated virtual goods.

Ultimately, our experimental yet empathic approach towards digital fashion assets aims to challenge the traditional fashion business models of production, consumption and ownership with a more transparent, efficient and equitable approach.

Fig. 5 – About DMAT
(THE DEMATERIALISED, "ABOUT DMAT")

This web3 approach is said to be a reconfiguration of "traditional fashion business

models of production, consumption, and ownership" (THE DEMATERIALISED,

"ABOUT DMAT"). Through this reconfiguration, DMAT endeavors to create a "new

reality for fashion" that not only preserves the self-extension and expression capabilities

of surrealist, AR-supported garments, as explored in chapter one, but also supports

brands and replicates the unique aura of physical goods in the digital domain.

When purchasing a virtual garment via the DMAT marketplace, shoppers are met

with a tremendous amount of information. Each product is accompanied by a description,

asset and file type particulars, usage instructions (AR photos and videos vs. games) and

contexts (what social media platforms and games are compatible), as well as a "real

transparency" tab containing details about the garment's construction. This frontloading

of information serves two key functions. First, it constructs the feeling of legitimacy by

mirroring traditional online retailers and other known e-commerce spaces. Second, it

serves as a mechanism of scarcity and authentication.

KARINA's ae-fit

aespa x PAPER x DMAT   ∞   (real transparency)

Supply: 0 / 1

2000€   ~1.253133Ξ

Asset Information   ∧

Blockchain: Polygon

Contract: 0x77AAF8F1...

Token ID: 0

Token standard: ERC1155

Sold Out

Fig. 6 – Shop, sold out
(THE DEMATERIALISED, "Own KARINA's Ae-Fit on The Dematerialised.")

Fig. 7 – Shop, asset information
(THE DEMATERIALISED, "Own KARINA's Ae-Fit on The Dematerialised.")

Unlike the makers of the aforementioned Loro Piana cashmere coat, the digital designer of any particular garment has no way of meaningfully differentiating his or her output from another designer's. With the correct tools and appropriate 3D design acumen, digital garments are truly endlessly reproducible. Therefore, by attaching each garment to a blockchain-backed NFT, designers can first implement mechanisms of scarcity, allowing digital assets to "sell out." They can then utilize the NFT like a digital ID, proving ownership of a particular item and reattaching it to an individualized experience.

Regaining Control

The Aura Blockchain Consortium is on a mission to "safeguard the authenticity of luxury goods in a market flooded with strikingly similar fakes" (O'Connor). To accomplish this goal, the Consortium relies on the successful implementation of blockchain-validated provenance and authentication measures to combat counterfeiting and reattach the aura to mass produced luxury goods. THE DEMATERIALISED, dubbed "the digital department store of your dreams" (Bloomberg Originals 10:59-11:03) does the same while operating under the assumption that brands will need to safeguard their branded digital assets in the near-future where virtual clothing consumption is commonplace and may too be attacked by inauthentic copies.

Walter Benjamin writes of fading aura and changing relevance of "authenticity" just prior to World War II; nevertheless, his assertions remain relevant in today's landscape. Although his concerns centered on the effects (both positive and negative) of photography and film "we, too, find ourselves at a moment of acceleration that feels emergent and profound, promising and ominous, with repercussions on our social and cultural systems we have yet to understand" (Sherman 28). As the pandemic strengthened the counterfeit market and brands continued to operate in the delicate balance between the benefits of an efficient, globalized system of mass production and the threat of brand infringement through unauthorized reproduction, web3 offers an opportunity to build regimes of control. These regimes begin in the present (physical) industry and can extend into the coming (dematerialized) future.

*"If 'the Cloud' were a country it would
be the sixth largest consumer of electricity on the planet."
– Gary Cook*

Chapter Three

A Crisis of Environmental Impact

As collective awareness of climate change and environmental threats grew during the pandemic (Cernansky), the global fashion industry was taken to task for its significant contributions to the worsening state of the environment. These negative contributions are largely due to the use of modern textiles that rely on petrochemical products, leading the fashion industry to account for a whopping 10% to the global carbon dioxide emissions in 2022 (Dottle and Gu). This contribution exceeds the combined emissions of international flights and shipping (Dottle and Gu). Moreover, the sheer volume of clothing being produced is estimated to be double what it was in 2000, and unfortunately, only a small portion of this production is recycled — with the rest getting incinerated or sent to landfills across the Global South (Dottle and Gu).

Though consumers meaningfully contribute to the issue by purchasing (and oftentimes quickly discarding) these manufactured goods, the 2022 BoF-McKinsey *State of Fashion Survey* revealed that nearly half (43%) "of Gen-Zers say they actively seek out companies that have a solid sustainability reputation." (Business of Fashion and McKinsey & Company, "State of Fashion 2022" 89). It is worth noting that surveyed consumers prioritize a brands' *reputation* over their practices. And so, amid a consumer "mindset shift towards sustainability" (Business of Fashion and McKinsey & Company, "State of Fashion 2021" 15), pseudo-sustainable efforts backed by "a good story that is persuasive to consumers," can be enough to retain loyal consumers (Cernansky). In other

words, while brands are encouraged to "swap platitudes and promotional noise for meaningful action and regulatory compliance" (Business of Fashion and McKinsey & Company, "State of Fashion 2020" 52), they do not need to entirely transform their practices (Cernansky).

Therefore, while the climate crisis is real and imminent, brands are given some "room to experiment with sustainability, even if they are not always immediately successful" (Cernansky). However, there is a fine line between honest experimentation or storytelling and deceitful "greenwashing," or "using sustainability as a marketing strategy without a significant positive impact on the environment" (Business of Fashion and McKinsey & Company, "State of Fashion 2020" 54). In order to avoid accusations of empty gestures, fashion brands are called "to be authentic and transparent throughout [the] process" (Cernansky).

In this final chapter I argue that Web3/metaverse fashion projects toe that line perfectly as they construct charismatic tales around dematerialization and transparency, obfuscating important truths, to present sustainable alternatives to or add-on services for the traditional fashion industry. To support this claim, I examine how the specific capabilities utilized by DressX, the Aura Blockchain Consortium, and DMAT are presented as vehicles to address concerns surrounding the fashion industry's negative environmental impact. More specifically, I analyze how each project confronts or circumvents challenges, opportunities, and predictions while maintaining a critical eye towards what information is obscured and prioritized. To begin, I broadly consider how digital technology and informatization serve to obscure environmental costs (Ensmenger,

Holt and Vonderau) behind values of liquidity, including lightness and speed (Bardhi and Eckhardt).

The materiality of our "virtual future"

As we continue to imagine ourselves (in the Western world, at least) as living in an information society, "by which we also mean a post-industrial society," we create distance between us and the material infrastructure of our digital ecosystem (Ensmenger, "The Environmental History of Computing" 8). This distance leads us to believe that our ubiquitous information technologies will soon (or have already) entirely displace traditional markers of "industrial modernity — roads and bridges, assembly lines and automobiles, factories and farm equipment" (Ensmenger, "The Environmental History of Computing" 8). Consequently, as goods and services expand into "the invisible realm of Cyberspace," many are led to believe that we are undoubtedly entering "a less resource-intensive and environmentally impactful economy" (Ensmenger, "The Environmental History of Computing" 9). This is particularly true as more of our digital resources reside in the so-called "Cloud" (Ensmenger, "The Environmental History of Computing" 9). However, the very drivers of this envisioned mode of existence are inextricably tied to legitimate material costs.

It is through digitization and information technology that we "visualize, explore, and exploit our environment more efficiently" (Ensmenger, "The Cloud Is a Factory" 4). We travel, consume, and pollute more pervasively — drastically increasing "amount of material moving around the planet… in recent years" (Ensmenger, "The Cloud Is a Factory" 4). In fact, "this increase is not only enabled by information technology, but *required* by it" (Ensmenger, "The Cloud Is a Factory" 4) and the vast material

infrastructure that makes it all possible has disappeared by way of dematerialization and the invoking of cloud imagery: clean, puffy, and weightless.

"The cloud," therefore, is a "marketing concept that renders the physical, infrastructural realities of remote data storage into a palatable abstraction for those who are using it, consciously or not" (Holt and Vonderau 72). This "cloud" is actually accompanied by a physical site for the processing, storing, cooling, or distributing trillions of gigabytes (now "known as zettabytes") of data (Holt and Vonderau 75). The resulting energy needs of the cloud's physical partner are astronomical — with a single data center oftentimes requiring more power than a medium-size town (Holt and Vonderau 82). These sites are also noisy and dangerous for those living nearby.

This nefarious abstraction persists in the case of digital asset production as well, including digital fashion garments and NFTs. The narratives surrounding digital modes of production, distribution, and use — including dematerialization and increased data transparency — are presented as sustainable alternatives to, rather than accelerators of, environmentally costly realities. According to a Fact Sheet released by The White House in September of 2022, the estimated total global electricity usage for crypto assets, as of August of that year, "exceeds the total annual electricity usage of many individual countries, such as Argentina or Australia." Additionally, "crypto-asset activity in the United States is estimated to result in approximately 25 to 50 Mt CO2/y, which is… similar to emissions from diesel fuel used in railroads in the United States" (The White House).

Furthermore, like the physical maintenance of cloud-stored data, digital asset mining operations can cause "local noise and water impacts, electronic waste, air and…

additional air, water, and waste impacts associated with all grid electricity usage." All of which exacerbate "issues for neighboring communities, which are often already burdened with other pollutants, heat, traffic, or noise" (The White House). However, these truths are hidden behind narratives of sustainability, driven primarily by praising digital assets for their lack of material form.

"Don't shop less, shop digital fashion"

No materials, no problem!: dematerialization and The case of DressX

The DressX website is littered with declarations of sustainable practices, as sustainability is implied in their tagline: *"don't shop less, shop digital fashion"* (DressX, "OUR VISION"). Furthermore, DressX appears to be mindful of the increased concerns about fashion's role in the worsening environmental crisis. There is a "sustainability" tab included in the site's main navigation bar, they publish an annual *Digital Fashion Sustainability Report*, and they regularly offer up statistics comparing digital and physical (with the implications of digital paling in comparison, of course). However, like the notion of "the cloud," the provocation to "shop digital fashion," rather than shopping less all together divorces digital production from its physical, infrastructural realities. After all, *why would a brand, who is seemingly well informed about the state of fashion, encourage digital consumption if it wasn't a viable alternative?*

DressX further drives this abstraction with inconclusive, hidden, and/or confusing data about these infrastructural realities. The 2021 *Digital Fashion Sustainability Report,* for example, begins with its own "state of fashion" assessment — speaking to the pollutive power of fashion and vowing to minimize the industry's carbon footprint and eliminate waste. While there is a brief mention of the climate impact of NFTs in this

report, it is buried on page 10 of an externally linked PDF that the average site viewer

will likely never see (DressX, "Digital Fashion Sustainability Report 2021"). What

shoppers *do* see are charts and graphics making comparisons between the impacts of

digital versus traditional garments in which the unfavorable consequences of virtual

fashion are either unclear or unidentified.

Enviromental Factor	100 Real Dresses	100 Digital Dresses
	Machine washing, machine drying, ironing, OR Dry cleaning	
CO2 emission, kg	35	We are calculating the impact of archiving digital garments.
Water consumption, liters	7500	With digital clothes, we save the amount of water enough to drink 8 cups per day during one year for 10 people
Toxins contamination	Potential danger of soil and air contamination from the chemicals	As per our calculations, there is no soil or air contamination danger while using a digital item
Microplastics	Microplastic pollution caused by washing processes of synthetic textiles has recently been assessed as the main source of primary microplastics in the oceans.	As per our calculations, there is no release of microplastics while using the digital garment

Fig. 8 – 100 real dresses vs. 100 digital dresses
(DressX, "Sustainability / Planet")

While they calculate impacts, they are donating 1% of revenue from all sales to

No More Plastic foundation and producing garments that emit "97% less of CO2 than

production of a physical garment" (DressX, "Sustainability"). These efforts — some

genuine and some nefarious — coupled with their slogan, and skewed data all contribute

to DressX's sustainability story. This story is persuasive, meaningful and complaint

enough, and seemingly authentic — and thus enough to appease consumers looking for

brands with palatable sustainability reputations.

Seeing is believing: transparency and the cases of Aura Blockchain Consortium and THE DEMATERIALISED

The Aura Blockchain Consortium derives value in its ability to collect and store high volumes of data. Their digital IDs are useless if they are not connected to a well of information tracking provenance, proving authenticity, and connecting customers with pre-manufacturing context or after-sales assistance. However, according to the Consortium, this data is not just the driver of their unique value proposition, it is also the key to a sustainable future.

In a 2022 blog post titled *"Leveraging Blockchain for Supply Chain Transparency in the Luxury Sector,"* The Consortium discusses the environmental impacts of the textile industry as well as "evolving customer expectations" around sustainability (AURA, "Leveraging Blockchain for Supply Chain Transparency in the Luxury Sector"). While the post begins with a discussion of the environmental crisis, it quickly moves on to explain how Aura's private blockchain validates and shares information at every stage of the product life cycle — from raw material selection to garment construction to consumer purchase to secondary sale. According to the post, increasing the quantity and quality of information gathered and made accessible is a great way to address heightened consumer expectations. However, what the post does not mention is that this increased transparency and supply chain record keeping relies on a physical infrastructure. The data has to live *somewhere*. Once again, like references to "the cloud," reliance on claims of the blockchains' digital capabilities hides physical realities.

For the Consortium, sustainability means transparency and transparency means lots of data; but reality does not stop there — lots of data requires lots of storage, and lots of storage requires massive, physical data centers with tremendous environmental costs (Holt and Vonderau). THE DEMATERIALISED philosophy is born out of the same school of thought. By going digital, like DressX, DMAT is able to construct the facade that their practices are inherently more sustainable than a traditional, physical retailer. However, by attaching garments to NFTs, they too rely on tremendous computing power and storage.

Simply put, all three projects exemplify the charismatic nature of the very technology that brings them all to life. Their roots in metaverse/web3 discourses and reliance on innovative technological implementations endow them with the ability to present attractive alternatives to or add-on services for the traditional fashion industry in desperate need of a sustainable makeover. Furthermore, the informationalized and digitized contexts in which they are enacted are perfectly designed to obfuscate the truth about the vast material infrastructure they require. Together, DressX, the Aura Blockchain Consortium, and THE DEMATERIALISED illustrate how fashion's web3/metaverse offered industry actors a potential avenue to pacify consumers looking to engage in more (seemingly) ethical consumption without much tangible evidence of sustainable practices.

"The best way to predict the future is to invent it."
— Alan Kay

Conclusion

Till Next Time!

Since "the metaverse" and "web3" reentered the popular lexicon in mid-2020, they have seen both tremendous highs and defeating lows. In the relatively short amount of time since, the value of digital assets has both skyrocketed and plummeted, digital innovations have been praised as one of the greatest revolutions and mocked for crude and thinly veiled attempts to make a quick buck, Hermès sued NFT artist Mason Rothschild (and won), some executives were appointed and promoted while other digital teams were laid off entirely, Roblox users were overwhelmed with popup fashion experiences and branded in-game merchandise, Facebook rebranded to Meta, and so on.

Over time, the urgency around building up digital repertoires in the post-pandemic world faded, as many eventually regained the normalcy that characterized pre-pandemic life. This shift in priorities caused some to view investments in metaverse and web3 technologies as trivial and unimportant. As a result, many brands pushed their digital initiatives to the back burner or cut them loose altogether. Despite this, some brands remained committed to their digitized initiatives, doubling down on their investments and affirming the transformative potential of these technologies.

Nevertheless, the theoretical framework supporting this research cuts through this turbulence to first identify a thematic throughline from pandemic-induced crises to environmentalism. Utilizing visual and textual discourse analysis as well as multi-sited ethnographic research methods, I have argued that adoption of the metaverse/web3 was initially a response to the COVID-19 pandemic and a desire to prioritize meaning over

materiality for homebound individuals — ultimately in a bid to sell clothing in a moment where clothing consumption was rendered nearly obsolete. However, this adoption also necessitated measures of control to maintain brand authority and prevent endless reproduction of informationalized, digitized fashion. Additionally, the departure from materiality invites the consideration of the inherently "greenwashing" capabilities of dematerialized production and the technology that surrounds it in a time where the hostility and unpredictability of the world, including the environment, is top of mind for many.

This framework also nods to an unsatisfying truth: that the web3/metaverse moment may not have ever been about shaping the *actual* future of the industry by riding extended reality or blockchain's coattails. It might not have even been about profiting off of novelty. At its core, this moment may have been a mere opportunity to harness charisma and run with it because in that run, those paying attention might find the *real* opportunities to redefine fashion for the modern era by seamlessly integrating the ideologically resonant with the flashy and innovative and doing so at scale.

Perhaps surrealist dressing through AR-supported garments, for example, was not what consumers really wanted — but maybe there was something there. Should the right brands spin it into something else, it might have legs. Perhaps the infamous MSCHF big red boots, that were utterly unavoidable on social media the week they dropped in early February 2022, were better suited for the dynamic and malleable consumer. Or maybe neither will quite scratch the itch; or maybe one will return, slightly improved, a few years down the line.

Nevertheless, though the moment has (mostly) ended, each site of charismatic market trendiness will undoubtedly extend its tentacles into new, more appropriate and culturally attuned pitches. Industry actors will continue to seek out ways to enable self-expression while creating new commodities to sell, they will always be looking to tighten control and ward off counterfeiters, and they will continually look to accommodate the changing values of consumers both now and in the future. And so, the question is not *when will the be-all and end-all solution arrive*? The question is *how much time do we have before we have to start fashioning and pitching the next one?*

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