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IN BLOCKCHAIN WE TRUST?

The examination of an anti-counterfeiting solution



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Table of Contents

<i>Abstract</i>	4
<i>Introduction</i>	8
<i>Literature Review</i>	16
<i>Chapter One: The Counterfeit Criminal</i>	31
<i>Chapter Two: Counterfeiting and its Discontents</i>	53
<i>Chapter Three: Key Questions in Luxury</i>	94
<i>Chapter Four: The Optic of Blockchain</i>	129
<i>Chapter Five: Demystifying Blockchain</i>	153
<i>Chapter Six: The Creative Destruction of Blockchain</i>	173
<i>Chapter Seven: Block-Tech Enhancing Supply Chains</i>	183
<i>Chapter Eight: Regulating the Heterotopia</i>	204
<i>Chapter Nine: Methodology</i>	215
<i>Chapter Ten: Data Analysis</i>	231
<i>Chapter Eleven: Findings and Future Recommendations</i>	296
<i>Conclusion</i>	307
<i>Bibliography</i>	314
<i>Appendix</i>	340

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DISCLAIMER

Consequent to rapid developments in the field of the nascent technology, referred throughout this thesis examination as ‘Blockchain’, some calculations and statistics may have changed or adjusted.

ABSTRACT

Product Counterfeiting is deemed a major and pertinent threat to the global luxury sector. The entanglement of luxury and counterfeiting has evolved into a complex problem for the modern milieu. This aim of exploring this topic as social phenomena seeks to expose the shadow economy of counterfeiting, unpack issues of intellectual property and the threat posed through the integration and adoption of blockchain technology as an anti-counterfeiting solution and high trust system of exchange.

Luxury counterfeited brands offers a perspective which considers the complexities surrounding fashion consumption, the globalisation of brands, brand culture, and the connotations of luxury today, including its place in the criminological sphere. Academics call for studies pertaining to the under explored area of counterfeited luxury goods owing to a rise in the grey and copycat markets further catalysed by recent market demand for second-hand luxury goods (Wall and Large, 2010; Wang et al., 2020). The consumption of such goods not only pilfers innovation and affects industry but is entwined with a mirrored underworld of counterfeit production and consumption which has given rise to more sinister activities with linkages to organized crime, modern slavery, and terrorist activities.

Against this backdrop, this research will seek to achieve the following research aims:

- A. Examine product counterfeiting of luxury goods as a social phenomenon

- a. Critically examine the socio-economic, historical, and cultural implications of counterfeiting.
 - b. How are issues of copyright and trademark infringement impacting counterfeiters?
- B. Examine Blockchain as an anti-counterfeiting solution and its enhancement of supply chain management.
- a. Can Blockchain-based supply chains enable transparency and product traceability?
 - i. Can the integration of a blockchain solve issues of provenance?
 - ii. What is the value of blockchain-enabled services?
 - iii. Identify threats to adoption and regulation of blockchain technologies in the UK.
 - b. Can Blockchain enable a high-trust ecosystem?
 - i. Does block-tech ensure accountability and create trust?
 - ii. Examine the proposition that non-fungible tokens can create unprecedented models of ownership allowing for product circularity.

The study seeks to unveil the shadow industry of counterfeiting's impact and to assess blockchain technologies merit as an anti-counterfeiting solution via an examination of issues existing in luxury goods supply chains. Thomas' (2019) description of fractured supply chains and the utilisation of sub-contracting via offshore producers are central to establishing a case for enterprise blockchain-based solutions to combat counterfeiting and

to create transparent supply chains. To achieve the above-mentioned aims, this literature review will highlight the impact of product counterfeiting through the provision of an ontological examination of counterfeiting with a particular focus on luxury goods. The penultimate section offers a sociological examination of the luxury goods industry, anti-counterfeiting measures and addresses inherent issues overlooked in studies regarding counterfeiting of luxury and their interrelationship. The final section of the literary review will provide a theoretical examination of blockchain technology (block-tech) within an epistemological framework to assess block-tech capability to enhance supply chains to foster transparent and traceable chains, and, in doing so ameliorate the effects and risks of counterfeiting within the global luxury goods industry.

As this research is exploratory in nature, it will undertake a qualitative methodological approach, investigated through elite interviews and ethnographic data collection. The study will address this surge in the demand for counterfeit luxury goods and its accumulation into a trillion-dollar generating industry, as a social and criminological phenomenon. The researcher will examine issues pertaining to, and solutions of traceability, authentication, and supply chain provenance. In fulfilling the research objectives, it is imperative to identify current anti-counterfeiting strategies' effectiveness through a critical and comparative examination, with a focus on the distributed ledger technology (DLT) known as Blockchain. Henceforth, blockchain will be referenced throughout as '**block-tech**' and otherwise 'the technology' or 'blockchain technology', or on its own 'blockchain'. Initial findings reveal the emergence of conscious consumers, a

rise in re-commerce of luxury goods and a shift toward circularity within a microcosm of the industry.

Keywords: counterfeit trade, blockchain, technology, luxury, counterfeit goods, product counterfeiting, anti-counterfeiting, supply chain, luxury goods, non-fungible token, Veblen goods, traceability

INTRODUCTION

Patrizia: Who is doing this? Who is allowing this to happen?

Maurizio: As far as fakes go, they're pretty good. I mean, I'd buy them

Maurizio: It's my name on the mug not yours

Aldo Gucci: They're not fake by the way, they're replicas

Patrizia: I was just very, very surprised

Aldo: Well you know what else will surprise you, how profitable this stuff is

Patrizia: What about quality? Your sacred cuts?

Aldo: Quality is for the rich, if a Long Island customer wants to live in the illusion [that] she's a Gucci customer, why not let her?

Patrizia: Because it damages Gucci's credibility

Aldo: Gucci is what I say it is, I turned it into an empire.

**mise en scene; House of Gucci, 2022*

A social scientist is said to survey things from a higher plane, for Rojek, the 'size and vigour' of the counterfeit trade 'raises several interpretive questions relating to authenticity, **trust** and meaning" (Rojek 2017: 31). What, then does counterfeiting *mean* to society and how can it be curtailed are key questions in unpacking the salience of the subject. To counterfeit or copy in a late modern period raises the issue of intellectual property. Some in England might still recall "Slater the Traitor", a case of industrial espionage in 1790 when English immigrant Samuel Slater replicated the techniques to establish America's first water-powered textile mill. Under British law, trade secret infringement and copying incurred the death penalty, so what would possess Slater to

betray his country at risk of death? In the 18th century, the great experiment of the United States was well underway and founding fathers Alexander Hamilton and Benjamin Franklin recognised the power of the machine and the merits of technology piracy in advancing the young republic. “Alexander Hamilton stressed the need to steal European technical knowledge, while Benjamin Franklin openly encouraged British artisans to immigrate to America – and, implicitly, to bring British machinery with them” (ForeignPolicy.com, 2021). Matthewman (2011: 32) posits that the production techniques and capabilities of the manufacturing system became the paradigm for classical political economy.

The amalgamation of capitalism, commodity fetishism and unintended consequences gave rise to shadow economies and illicit markets propelled through counterfeiting techniques. Through forces of capitalism, such as comparative advantage, globalisation and competitive pricing combined with commodity fetishism created the ‘unintended consequences’ i.e. counterfeiting boom; the transition from a cottage industry into a global industry. In a late modern period, everyone can own ‘designer’.

However, preliminary research suggests counterfeiting is threatened by the integration of blockchain technology purported to facilitate a high-trust accounting system. The proliferation of shadow economies and links to counterfeit commerce has exposed serious implications from a socio-political and economic position. Block-tech is presented as an anti-counterfeiting solution through timestamping and tamper-evident record keeping capabilities. Further, the anti-criminogenic capabilities of blockchain

technology, block-tech, will be examined as it relates to solving issues of ownership and provenance. Blockchain based solutions offers decentralised data storing, capturing and sharing in a distributed network of nodes and users; thereby engendering high-trust relations enabled through what Antonopoulos describes as *decentralised trust*; in a way facilitating the creation of a digital social capital ([elaboration on Fukuyama, Trust and Social Capital](#)).

Further, investigations into the illicit trade of counterfeit luxury purports that the question of ‘real’ is debatable when referring to better quality counterfeits. Alibaba founder and executive chairman, Jack Ma, proclaimed in a speech in June 2017 that - “the fake products today are of better quality and better price than the real names. They are exactly the [same] factories, the same raw materials, but they do not use the same names” (Pithers, 2017). On the other hand, Wall and Large (2010: 1106) consider the ‘hyper-real’ aspect in the relationship between counterfeits and the authentic products, citing Baudrillard’s 1994 and 1998 arguments, ‘counterfeits can effectively become the ‘real thing’ because they become desired in and of themselves’. The former observations are in line with Ledbury Research (2007) findings citing a general increase in the overall quality of counterfeit luxury goods (Wall & Large, 2010). Building on this, various forms and levels of fake luxury goods have exploded on the market, and are typified as “super fakes”, “triple-A fakes”, or “line-for-lines”, within the past five years (*Fashionista*, Mau, 2018). To this end, this study will seek to investigate the application of blockchain technology’s function as an anti-counterfeiting technology. Such an undertaking demands

empirical rigour to determine whether blockchain-based solutions will alleviate issues rampant within existing supply chain management of luxury goods.

As Chaudhry et al., (2009) point out, it is difficult to measure the consequences of this growing counterfeit trade as it differs in variation in the approximation of damages incurred by parties involved. Previous mechanisms to inform the escalation of the trade included investigative reporting and policing efforts via customs seizures and trade monitoring agencies. Recently, Intellectual Property Rights owners and stakeholders are fighting back by adopting smarter technologies to identify the real from the fake. Anti-counterfeiting agencies such as International Anti-Counterfeiting Coalition based in Washington, and the Anti-Counterfeiting Group based in England, among others have pooled their resources in the avocation for strong international property (IP) protection. The IACC plays an active role to ensure that local and international Customs personnel have the legal authority, tools, and funding to combat the trade and ultimately to protect consumers and brand owners (IACC, 2018). This role facilitated by the IACC extends to online counterfeiting, where they employ a “follow the money” approach in weeding out the trafficking and traffickers of counterfeit goods online (Ibid, 2018). In 2012, the IACC launched the RogueBlock program in partnership with global multinational brands and financial firms with the objective to reduce the ability of criminal counterfeiters to process online transactions.

Despite this concerted approach, there still stands the need for a harmonised effort among brand owners, governments, enforcement agencies and anti-counterfeiting groups in

educating the public of the detrimental consequences product counterfeiting poses to society. According to the *Intellectual Property Crime Report* (2007:5), “the biggest hurdle to overcome is to educate the general public”. In the construction of a theoretical framework, this research employed an ‘adaptive theory’ (Layder, 1998) approach which allows for ‘a genuine willingness to utilise appropriately both qualitative and quantitative data sources’ (Bottoms, 2008: 98-99; Large, 2015).

Theoretical background

Walter Benjamin’s examination of reproducibility in the age of mechanical reproduction considers issues of originality, politics, and status differentiation in the consumption of fakes and will be employed to the enrichment of this thesis. “*When the volume and scale of the global counterfeit trade nowadays is factored in, together with the subject of consumer motivation, especially in the matter of consuming non-deceptive counterfeits, the issues multiply in **range** and **complexity***” (Rojek, 2017: 31).

Further, a threat to the sense of self reveals an underlying question – if all is fake, then what remains of the ‘real’ or ‘authentic’? Scholarly attention has been dedicated to the loss of the real and the proliferation of the reproduction (Baudrillard, 1994; Eco, 1987; Debord, 1994). For Baudrillard, the antique signified time and in such held merit in the quest for authenticity. Antiques offered an anchor to the past, whereas Miller (2008) held that objects served the function of modern totems. Adorno and Horkheimer’s late capitalism illustrated a logic of domination through which cultural intermediaries

controlled the culture industry. In a letter penned to Benjamin on the supervisory of his thesis, Adorno held this view, “To understand the commodity as a dialectical image is also to see the latter as a motif of the decline and ‘suppression’ of the commodity, rather than as its mere regression to an older stage. The commodity is, on the one hand, an alienated object in which use-value perishes, and on the other, an alien survivor that outlives its own immediacy” (Adorno, 1935 In Jameson, 1977: 113). Adorno further revealed, “I agree with you that the **aural** element of the work of art is declining – not only because of its technical reproducibility, incidentally, but above all because of the fulfilment of its own ‘autonomous’ formal laws (reference to work with Kolisch). But the autonomy of the work of art, and therefore its material form, is not identical with the magical element in it. The reification of a great work of art is not just a loss, any more than the reification of the cinema is a loss” (Adorno to Benjamin, 1936 In Jameson, 1977).

Benjamin constructed *The Arcades Project* as a symbolic window into the modern life of Paris through the eyes of the Flâneur. This iron-built environment served as a microcosm of modernity. Emergent of these ‘temples of commodity capital’ came contemporary ‘cathedrals of consumption’ (Benjamin, 2004: 37; Ritzer, 2001 In Matthewman, 2005: 54). In Benjamin’s *Arcades*, the concept of the dream prototype is presented, *Chaque époque rêve la suivante* [Every epoch dreams its successor]. This reference of the dream is to ‘imagine new technologies in terms of established ones’ (Matthewman, 2011: 56). For Adorno, this proved problematic, ‘if you transpose the dialectical image into consciousness as a “dream” you not only take the magic out of the concept and render it

sociable, but you also deprive it of that objective liberating power which could legitimize it in materialistic terms' (Adorno to Benjamin, 1935 In Jameson, 1977). In order to shake from the collective dream, the task Matthewman posits is not to imagine is as it has existed but as it has never been.

Further, this 'technical mutation' (Foucault, 1979: 257) inhibits new velocities but also new forms of control and criminality. For a maximalist, bitcoin is the only true example of a working blockchain as it was meant to be; open-source, decentralised and public: the ability for total visibility on the chain. Track and trace technology and data accumulation are the late modern capital, exposed through the likes of a surveillance system as exposed by Edward Snowden demonstrating the power of data when Cambridge Analytica scandal illustrated how data could be used to shift the outcome of an election. For Foucault, panopticism is a feature of modern society and which cultural intermediaries will struggle to preserve.

Blockchain technology is a nascent technology, an immutable digital ledger which enables smart contract automated execution thereby enabling new possibilities, such as new modes of financialization. Brands and businesses are embracing the transition to digital to create new customer experiences to enhance consumption. Block-tech is contingent on community which nurtures the technology and can be harnessed to connect to consumers in unprecedented ways to enhance the overall consumer experience. The semiotic power of block-tech is embedded in a mythological status; crafted by its creator and continued through the community. A material semiotic approach as captured through

the action network theory, propounded by Bruno Latour will underpin the theoretical analysis to enhance the research ethnomethodological inquiry. For Latour, ANT designates a mode of inquiry that reveals around any given substance the vast deployment of its attributes; the substance that is self-contained and transformed into what it needs to subsist through a complex ecology of tributaries, allies, accomplices and helpers. Further, the expansion to digital increases the material dimension of the network; for the more digital the less virtual the more material a given activity becomes. Bijker (2007) conceptualises technology as having political power, with micro and macro political and economic motivations. While Miller (2018) contends that a hidden power may lie within the technology, for example bots and algorithmic driven technology. This obscure power may be held within the technological design; “different forms of ‘persuasive’ digital technology are being designed in ways that more and more sophisticatedly reflect what humans are really like” (2018: 301). Machine learning and algorithmic techniques are becoming smarter as the social construction of blockchain technology and macro-political issues surrounding this techno culture considers regulatory environments and infrastructure. Technology is interwoven in the social fabric; while it co-shapes it is co-produced (Matthewman, 2011: 102). How a blockchain technological culture will shape and organize the social merits scholarly attention.

Literature Review

The subject of counterfeiting raises many interesting questions, such as will be furthered in the chapters on authenticity, originality and trust. Recent interest in counterfeiting risks conceptualising it as a new phenomenon, which extant literature supports is not the case. Staake et al., (2009) provided the first comprehensive theoretical analysis of research on counterfeiting, which was later furthered by Chaudhry et al., (2017) in the most recent collection of research on counterfeiting and illicit trade to date, and which has been instrumental to informing this research. Earliest scholarly pursuits seeking to understand the nature, psychology and effects of counterfeiting can be traced back to Kaikati and LaGarce (1980) which considered different anti-counterfeiting strategies and discussion of preventative measures for counterfeiting. Staake et al., (2012). Staake et al., (2012) took up the task to address counterfeiting through an outline of the international legal frameworks in place to protect trademarks, following the course of intellectual property rights and trade secret infringement. Wall and Large (2010) present a valid case for the victims of counterfeiting, with specific focus on the luxury goods industry. Despite the establishment of a valid argument, their findings suggest an attempt at explaining away the problem and its consequences, rather than providing future recommendations.

Having said that, it is important to establish that this research builds on where Wall and Large (2010) have left off, and in doing so, considers their theoretical background as informative to the pursuits of this study. Higgins and Rubin's (1986) response to the call for a deeper analysis in the counterfeit trade introduced the application of a model

proposed by Leibenstein (1950). However, the model analysed the consumption of counterfeit luxury for non-deceptive counterfeit cases, which differ from deceptive counterfeits in that their price and obvious diminished quality and presentation indicates a fake, versus a deceptive counterfeit which is hawked as the 'real' deal. Grossman and Shapiro's (1988) distinguish between two types of counterfeits: deceptive and non-deceptive. These types are useful with specific regard to the counterfeiting of luxury goods. As the terms connote, deceptive counterfeits are fakes with intent to deceive the consumer, whereas non-deceptive counterfeits are fakes which are easily discerned as a counterfeit version of the original due to a number of situational cues, i.e. location, product appearance, product quality, subtle variations to the logo or pattern infringed upon.

Recent contributions have sought to understand consumer behaviour in relation to counterfeit consumption (Staake et al., 2009). According to Staake et al., (2009) (2012), limited research has explored the supply-side features of the illicit trade, while the bulk of research tended to investigate the demand-side of the counterfeit argument, focusing on consumer behaviour as it relates to the consumption of counterfeit goods. However, it is worth noting that this approach tends to adopt a deductive and quantitative methodological approach (Davis et al, 2012; Chaudhry and Stumpf, 2011). As Bian et al., (2016: 4249) has noted, surveys and experiments can be "problematic when investigating socially undesirable or self-revealing behaviour" (Crane, 1999). There exists however, a small amount of work, which undertakes a qualitative approach (Bian et al., 2016; Agarwal and Panwar, 2016; Perez et al., 2010). Considering the cultural, social,

economic (Wall and Large, 2010) and political critiques will necessitate a grounded theoretical approach (Malhotra, 2007; Bian et al., 2016: 4249). A grounded theory allows for the analysis of complex (Flint et al., 2012) new issues (Strauss and Corbin, 1998) and clarifies how respondents conceptualise and experience a particular issue or phenomenon.

The existing research to date has identified counterfeiting as a serious threat and problem to industry and society, suggested methods to measure the impact of counterfeits, with particular focus on demand side investigations relating to consumers and brand owners concomitant with a growing body of research on managerial solutions and anti-counterfeiting strategies. Within the literature stream, researchers have propounded various methods to measure counterfeits from Hopkin et al.'s (2003), harm matrix to Hilton et al.'s (2004: 349; Parloff et al., 2006; Berman, 2008) differentiation of four varying types of counterfeit products related to the fashion industry as follows: “vanity fakes or low intrinsic, low perceived value product, overruns or copies made from leftover material, condoned copies made by other designers or fashion houses, copies made by the fashion houses themselves”. Furthering this categorization, Le Roux (2016: 350) contends counterfeiting, in this vein, is ‘far from being a homogenous category’. Moreover, Cesareo, Pastore and Williams’ (2017) have elaborated on Bosworth (2006) to include ‘near brands’ and ‘seconds’ within the spectrum of measuring counterfeits between non-deceptive and deceptive counterfeits.

[REPLACEMENT] To combat product counterfeiting, an extensive IP background is expected by many employers. IP represent a group of legal rights that provides protection

of goods/services that persons create or invent and can be grouped into the following: *trademarks, copyrights, patents and trade secrets*. An ICC report released in April 2017 indicated that the global economic value of counterfeiting and piracy could reach US\$2.3 trillion by 2022. In 2011, ICC released a report citing that counterfeits cost G20 governments and consumers over \$125 billion every year, while the G20 economies lose \$77.5 billion in tax revenues and higher welfare spending, \$25 billion in increased costs of crime, \$18.1 billion in the economic cost of deaths resulting from counterfeiting and another \$125 million for the additional cost of health services to treat injuries caused by dangerous fake products. The ICC estimates that multinational rights holders collectively lose 10 percent of their top line revenue to counterfeiters each year, while an IACC report from 2013 stated that since 1982, the global trade in illegitimate goods has increased from \$5.5 billion to about \$600 billion annually. The EU Observatory on IPR published numerous studies on the cost of counterfeiting and piracy with findings illustrating EUR 26.3 billion estimated losses in clothing, accessories, and footwear, while handbags and luggage saw EUR 1.6 billion in estimated losses annually.

Researching ‘FAUX LUXE’

Previous studies on counterfeit consumption have primarily concentrated on luxury goods or Veblen goods (Kim and Karpova, 2010; Wall and Large, 2010; Wilcox et al., 2009; Phau and Teah, 2009; Commuri, 2009; Hopkins et al., 2003, Nia and Zaichkowsky, 2000). Several authors have relied on theoretical models and psychological techniques to understand consumers’ decision-making process (Hunt and Vitell, 1986; Jones, 1991;

Rest, 1986; Wall and Large, 2010). Thorstein Veblen's (1953) theory of 'conspicuous consumption' confers status symbols such as luxury goods, are conspicuously consumed due to their high price, top-quality and low/high utility and therefore this consumption occurs as a demarcation of one's social position and pecuniary power. On the other hand, fake goods may have high utility for critics of luxury consumer culture in that they expose the deceptions of luxury advertising.

For Benjamin (1955: 215) 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', hence reproducibility diminishes the aural element 'aura' of the thing. This reduction and enhancement of 'aura' is integral to observations relating to counterfeit luxury goods. Many art historians and experts will comment on the 'presence', an aural quality, when standing or in the 'presence' of a work of art by an Old Master, such as Titian or DaVinci.

Late modern cultural intermediaries such as branded influencers enshrined in designer garb on Instagram and TikTok it is no surprise that luxury goods are the 'most counterfeited, with quality often being extremely high, making identification even harder, and prices drawing near the authentic ones to deceive consumers even further' (Cesareo et al., 2017: 197).

The issue of intellectual property is complex. From a legislative standpoint, the TRIPS agreement (Trade Related Aspects of Intellectual Property Rights) accounts for the most

comprehensive multilateral agreement surrounding issues of intellectual property and has three main features, *standards*, *enforcement* and *dispute settlement*. Concurrent with the establishment of the World Trade Organization, TRIPS agreement came into force in 1995 and required member countries to make patents available for any and all inventions. According to the agreement, seven types of intellectual property rights are covered and include: *copyright and related rights*, *trademarks*, *geographical indications*, *industrial designs*, *layout diagrams of integrated circuits*, *patents*, and *trade secrets* (WTO.org). However, contemporary IPR issues range in complexity requiring policymakers to consider clarity on key economic concepts and to address information asymmetries, for instance; “How Copyright differs from other IPRs that incentivize creativity and innovation” (WTO.org *The Economics of Trips*). Louis Vuitton, for instance, is widely regarded as the ‘father of branding’ with the creation of George Vuitton’s design of the iconic LV logo which further popularised the brand. Design patents, such as the George Vuitton logo for Louis Vuitton, are crucial to a brand for many reasons including ROI, as it strengthens the brand and complements other IP rights.

Today, counterfeiters favour LV as the go-to brand to counterfeit, owed to its iconism; popularism and iconic status in the luxury fashion sphere. However, there are those who purport a stark similarity between elements of the design of the LV Logo and the Kwele tribal mask of the Bakwele people of Gabon (TikTok, 2023). Further similarities have been unmasked contending elements of other African tribes within Luxury Fashion RTW collections, for instance the Kuba kingdom in Congo and the Maasai people in Kenya.

The salience of the counterfeit trade has unearthed an underlying political argument uncovered through a survey of the extant literature pertaining to the topic (Rojek, 2017). Wall and Large's (2010) contribution to research brings to academic attention the vicissitudes faced by the luxury sector in combating counterfeit commerce and as such this research seeks to highlight blockchain technology (block-tech) as an anti-counterfeiting solution to enhance and add value to luxury brands supply chains. Hence, this research will examine the subject through an epistemological lens to provide a structural understanding of the luxury sector and the application of blockchain-based supply chains to solve extant issues surrounding transparency, traceability, and provenance. Block-tech may be perceived as a technological configuration with latent anti-criminogenic features to prove chain of ownership; provenance, through its native attribution as a timestamp server. In contrast to Moore's Law, Moore's outlaws arise concurrent with new technologies where criminal elements tend to be exploited as the technology is introduced in society, e.g., *Silk Road*, *Cybercrime attacks via the Internet*, *Credit Card fraud*.

Demand Side Empirical Studies

Once there is a demand for a product, it will be counterfeited (*Fake Goods*, 2015). Today, everything from eggs, mineral water, pharmaceuticals, aeroplane parts, auto-motives are being counterfeited. Counterfeits have been grouped as safety-critical goods and non-safety critical goods, with luxury goods counterfeits as the latter (Wall and Large, 2010). Safety-critical goods that have been counterfeited are extremely dangerous and even

fatal, while counterfeited Veblen goods are considered innocuous. The underlying narrative associated with counterfeiting have tended to discuss cases of harm (Large, 2015). Prior studies have examined the dangerous consequences of counterfeiting with respect to safety-critical goods (Yar, 2005), i.e. pharmaceuticals, aeroplane parts. An analysis of counterfeit luxury goods has been chosen due to its low perceived risk factor and as such provides the opportunity to explore deeper questions underlying the production, distribution and consumption of fake goods. Holding to this, Wall and Large (2010: 1095) contend that ‘such a distinction between the various interests will inform future anti-counterfeiting strategies and the maintenance of the United Kingdom Intellectual Property (IP) Crime Strategy (IPO 2006)’.

Extant research has purported a divide of research on product counterfeiting into dual focal points addressing investigations of the supply side on one hand and the aspects of the demand-side (Zhang, 2015; Bloch et al., 1993; Bush et al., 1989; Tom et al., 1998). However, the contributions following this approach fail to articulate the complexity of counterfeiting, which are “either too general or too focused on further issues to be assigned unambiguously to one of the two aspects” (Staake et al., 2009: 324). Furthering this critique, many contributions to the research stream have proposed a lack of research toward the demand side investigations, which in contrast, comprise the bulk of literature produced regarding product counterfeiting (Staake et al., 2009; Bian et al., 2016). It is important to note that while many early contributions focused particularly on the supply side dimension of counterfeiting (Bamossy and Scammon, 1985), recent studies have tended to pay more attention to the demand side dimension of counterfeiting, placing an

emphasis on understanding consumer behaviour (Ang et al., 2001; Nia and Zaichkowsky, 2000; Phau and Teah, 2009; Wilcox et al., 2009; Zaichkowsky, 2006). Within the past decade, non-deceptive counterfeit consumption studies investigating characteristics and motivations of consumers drawing on demographic, psychographic and socioeconomic factors, have dominated the research stream (D'Amato and Papadimitriou, 2013). The literature stemming from marketing disciplines addresses an array of topics such as the motivations for purchasing counterfeit products (Ang et al., 2001; Gistri et al., 2009; Viot et al., 2014; Wilcox et al., 2009), and the consequences of counterfeiting on original brands and copyright holders (Nia and Zaichkowsky, 2000; Commuri, 2009). Further insight into the academic literature examining demand side investigations will be thoroughly developed in the consumer chapter.

An analytical overview of existing literature on counterfeiting carried out by Staake et al., (2009: 324) divided their research into the following subsections: “general descriptions of the phenomenon, impact analysis, supply-side investigations, demand-side investigations, managerial guidelines to avert counterfeits and legal issues and legislative concerns”. Their conclusion revealed four gaps in research, highlighted below:

1. Findings indicated limited academic research focused on the general impact of counterfeit trade on affected brands and enterprises, including measurement techniques of the share of fake goods existing in a studied market along with changes in brand perceptions and quality management issues related to the trade.

2. Limited knowledge on production settings, sales tactics, and growth strategies of counterfeit producers.
3. Theoretical discussions of consumer behaviour regarding counterfeit goods versus genuine goods, along with the financial impact the trade poses on individual brands.
4. Counterfeit trade's influence and impact on emerging markets.

According to Agarwal and Panwar (2016), five reasons borrowed from Wilcox et al., (2009) and Hopkins et al., (2003) have been identified as the primary factors behind the sudden emergence of counterfeit products on the market:

1. Access and availability to technological resources, such as the Internet, 3-D Printing, which assists the copying of logos, designs, and packaging of the original brands, and offers several ways to create high-quality counterfeit products.
2. Globalisation, the dissipation of international barriers and global market integration, via free trade agreements, eases the flow and dissemination of counterfeit goods from one geographic location to another.
3. Overproduction capabilities in territories like China, Vietnam, Egypt and Columbia, allowing for the availability of counterfeit goods which are sold to consumers via illegitimate channels.
4. Lack of stringent laws and legal penalties for counterfeiting in multiple countries
5. Increased connections of counterfeiting to organized crime and terrorist activities

Supply Side Empirical Studies

The neglect of research into the online versus offline market has subsequently undermined current academic research. Although research on anti-counterfeiting strategies have facilitated a bridge between academics and industry professionals, the failure to depict a clear distinction between distribution channels have culminated in an unbalanced representation of counterfeiting today. Staake et al., (2009) remarked on the absence of research delving into the supply side investigations, which many studies have sought to correct. For instance, Green and Smith (2002) identified key characteristics of production and the organisational structures of the deceptive market via an examination of counterfeit alcoholic beverages in Thailand. Alcock et al., (2003), initiated the discussion of the growing concern of online counterfeit trends, highlighting the increase in fakes retailed on the Internet. Mavlanova and Benbunan-Fich (2010) furthered the exploration of online counterfeit trends through an examination of counterfeiters in deceptive markets who exploited product presentation to influence signals, which would otherwise identify a product as counterfeit, thereby manipulating website trust signals to depict the counterfeiter as a licit business entity. Following this, Hollis et al. 's (2015) study purported a general framework for the application of routine activity theory to product counterfeiting, and in doing so determined three groups of key indicators: target characteristics, offender characteristics, and place-based and ecological characteristics of the crime event. This study illuminated the gap of literature present in identifying the criminological context of product counterfeiting. Most recently, Hansen and Moller's (2017: 11) study aimed at investigating counterfeit vendors, uncovered five major types

of moral justifications for seller's engagement in the trade; "1) the demand for counterfeit goods by foreign customers, 2) the involvement in the trade by corrupt government officials, 3) the argument that copying is not considered morally wrong in China, 4) the fact that others actors were engaged in the trade, 5) the claim that they were just trying to make a living". The authors further found that vendors often employed a tactic to increase the value of the counterfeit goods by using the genuine product's retail value as a reference point.

Quach and Thaichon (2018b: 246) focused their study on a critical examination of the supply of non-deceptive luxury goods 'retailed through free standing channels unrelated to the genuine firms' (Zhang and Zhang, 2015). Unlike much of the recent literature on counterfeiting consumption of luxury goods, which have skewed toward demand side investigations, studying consumers, Quach and Thaichon (2018b) recognize the gap in literature as addressed by Staake et al., (2009) and Cesareo et al., (2017) and therefore address various rationalisation strategies and motives behind the sale of counterfeit luxury goods online. As such, the authors' contribution marks the first empirical study to examine the perspectives of counterfeit sellers on social networking sites. In answering the call for further research in this particular dimension of counterfeiting, Quach and Thaichon's (2018b) study explores 'the characteristics of counterfeiters and supply chain channel members, e.g. vendors (Staake et al., 2012) which Stottinger et al., (2015) assert receive little attention from marketing studies. Consequently, this research seeks to gain a holistic perspective, and therefore will consider the methodology and findings presented by Quach and Thaichon (2018b). The authors comment on the scarcity of research in this

dimension as attributed to ‘restricted access to counterfeit market players and hence, the challenge of acquiring knowledge on sellers and their activities’ (Ibid: 246). Other studies have commented on the difficulty of access due to the clandestine nature of the illicit trade.

Quach and Thaichon (2018b) refer to Treadwell’s (2011) study of the auction site eBay, which investigated male counterfeit sellers’ utilisation of the online marketplace to commit intellectual property crime. Further studies have collaborated with other involved parties such as promoters and resisters of counterfeiting, counterfeit retailers, counterfeit buyers, authorised retailers/manufacturers, and regulatory parties, to facilitate investigations into the supply side of counterfeiting (Xiao and Nicholson, 2010; Amine and Magnusson, 2007) as well as pertinent stakeholders, comprising suppliers and intermediaries (Lecat et al., 2017). Quach and Thaichon (2018) note that most research to date has concentrated on the financial motivations of counterfeiters and thereby contend that such an approach simplifies the issue. As such, the authors have informed this study with the provision of a thorough description of counterfeit retailers in order to portray a holistic view of the illicit trade, and in doing so addresses the current gap in literature.

Through the development of the ‘Dark motives-counterfeit selling in social networking sites’ framework, the author’s discussed the reasons behind the selling of counterfeits from the vendor’s perspective as well as addressing the associated outcomes. The framework listed ten motives, which were further broken down into four main themes: ‘personal characteristics including self-interest priority and sense of adventure; moral

justifications comprising of denial of responsibility, inequality hypothesis of self-deception process, and social acceptance; operational aspects consisting of low-cost investment, free riding on luxury brands' marketing effort, and invisibility from regulators; and lastly, relationship management involving projecting image using volitional cues and interpersonal relationship with buyers' (Ibid: 245). The remaining two themes addressed the use of social networking sites to aid counterfeiters and highlighted various outcomes as value creation for the counterfeit buyers and value destruction for original brand consumers.

Criticisms

Large (2015: 172) challenges Wilke and Zaichkowsky (1999:10) contention that a low price is an indisputable indicator of a product's authenticity, or lack thereof, and finds this assumption to be 'arrogant' on the basis that goods may be deemed 'parallel imports', 'stolen' or that the consumer is not fashion conscious to establish the difference between actual retail prices. To further support this, the researcher addresses Chaudhry's et al., (2013: 29) claim that consumers purchase counterfeit premium branded goods because they cannot afford the legitimate item and as such 'this has given rise to suppliers who fill the need for products with famous brands at much lower prices'. This contention is, as Large (2015) puts forward, an 'arrogant' claim. Despite the author's recognition that consumers' allure toward luxury brands is partly due to the intangible qualities of exclusivity and prestige commonly associated with them, Chaudhry et al., (2013) falls short of providing a deeper analysis, which considers the severe

dichotomized notions of creation and copying in a contemporary knowledge-based economy (Pang, 2008) between eastern and western cultures. Furthermore, such a claim fails to recognize mixed patterns of consumption as seen in the UK with many Hybrid consumers, who consume both counterfeit luxury goods as well as the authentic luxury goods (Wall and Large, 2010; Ledbury, 2007). However, this criticism does not consider that Wilke and Zaichkowsky (1999) may refer to non-deceptive counterfeits, which is addressed as problematic in the establishment of their definition of counterfeits. Another criticism uncovered is to the reasons outlined for the growth of the counterfeit trade as it relates to the issue of excess products produced in Asia, etc which Agarwal and Panwar (2016) consider counterfeit articles. This ‘counterfeit’ falls into the category of grey-market goods which has been argued as different from counterfeit goods as they are not considered illegal or infringing on the brand’s trademarks. The illicit nature of grey-market goods identifies illicit activities occurring within the channels of distribution. Although authors highlight Asia as the counterfeit supply chain provenance, they fail to establish the counterfeiting landscape in factoring China’s role in the trade. To understand the scope of the ‘problem’ counterfeiting poses on the global economy and targeted stakeholders (e.g. institutions, employees, channel members, infringers, consumers and governments), it is essential to view it not as a new phenomenon, but one with roots as old as civilization. Following this journey to the past, the research will highlight current issues and the need for a specific research stream aimed at understanding counterfeiting today in order to combat this pervasive problem (Staake et al., 2009).

CHAPTER ONE

THE COUNTERFEIT CRIMINAL

The human cost of counterfeiting

“The reality is that selling fake goods cuts across a huge number of other crime types- and that includes violence, drug dealing and modern slavery”

-Huw Watkins, Head of Intelligence at UKIPO

In 2017 UK IP Crime and Enforcement report revealed 27 percent of UK trading standards authorities determined links between the counterfeit trade and organised criminal groups. Within this same report, authorities observed links between the counterfeit trade and modern slavery.

In March 2015, the Modern Slavery Act was enacted in the United Kingdom. The Act stipulated to make ‘provision about slavery, servitude and forced or compulsory labour and about human trafficking, including provision for the protection of victims; to make provision for an Independent Anti-slavery Commissioner; and for connected purposes’ (Modern Slavery Act, 2015). Within the legislation, a section discusses transparency in supply chains, which stems as the root of the problem of counterfeiting.

“I remember walking into an assembly plant in Thailand a couple years ago and seeing six or seven little children, all under ten years old, sitting on the floor

assembling counterfeit leather handbags...The owner had broken the children's legs and tied the lower leg to the thigh so the bones wouldn't mend. He did it because the children said they wanted to go outside and play" (Thomas, 2007: 288)

The above excerpt represents one of hundreds of similar distressing accounts of child labour and modern slavery practices. In China, families from the countryside sell children into labour. Some families believe they are giving their offspring a better life with opportunities than they could initially provide. For many of these children, they end up working in counterfeit workshops in Guangdong province. This is an unethical system that thrives on cheap labour, modern slavery and ultimate profit. Thomas (2007) notes that the children, after they were sold, would be picked up from train stations and then transported to the factories. However, this routine changed after police caught wind and started staking out stations requiring the factories to hire agents to pose as a married couple to uplift the child or children from the country to bring them to the factories.

According to Thomas (2007) selling children is a lucrative business in China. Children can work in the factories or resort to prostitution; this is the cruel and realistic alternative. However, this threat of modern slavery is not just found in China. In the seizure of Manchester's Bury New Road operations, a lack of worker's rights was illustrated when it was found that wages earned for the assembly workers on the machines were discovered at 70p per day. This systematic exploitation of labour struck a chord at the fourth Global Intellectual Property Brand Protection summit which highlighted slavery as

a prevalent issue associated within counterfeit trade. These wider social impacts form the argument for aggressive political intervention, which necessitates public awareness campaigns and educating constituents on the ramifications and consequences of counterfeit commerce – it is easy to buy a fake luxury handbag if you do not consider the child who must produce said goods.

The costs incurred with counterfeiting result in a taxonomy of three affected parties, which this research will highlight categorically as *victims*, *enforcers*, and *offenders*. Within the sphere of counterfeiting, victims will utilise Wall and Large's (2010) and Rojek's (2017) grouping: consumers, intellectual rights holders and the general public; the enforcers are further defined as public and private agencies tasked with eradicating counterfeiting and lastly, the offenders namely the counterfeiters and intermediaries. The problem with a grouping stem in issues of intellectual property rights, trademarks and ownership.

A note on the questionable association of consumers as offenders in the criminological context, as outlined by Large (2015), has argued consumer complicity to be considered non-criminal, due to the vague approach undertaken to position consumers as criminals and engaging in criminal behaviour through the consumption of counterfeit goods. This criminological grouping of consumers as criminals, as seen in France, contrary to the legal determination in the UK requires further examination.

The European Union Intellectual Property Office (EUIPO), has elevated the status of the once considered cottage industry of counterfeiting and piracy to a ‘global industry(s)’ (EUIPO, 2017: 55). Product counterfeiting of clothing, footwear and accessories cost EU industries EUR 26.3 billion per annum in lost sales, equivalent to 9.7% of the sector’s overall resources. Added to these an estimated 363 000 job losses have been directly incurred as a result, notwithstanding indirect losses. OHIM’s 2015 ‘Economic Studies’ “identified four key impacts of counterfeiting as reduced sales by legitimate business, reductions in tax revenues, lower employment, and public and private costs of enforcement” (Chaudhry et al., 2017: 288).

The International Anti-Counterfeiting Coalition (IACC) released a report with estimates of the global market in counterfeits and pirated goods projected at \$1.77 trillion, representing approximately 10% of world trade (IACC, 2018). This surge in global economic value represents a 100 percent growth in counterfeiting within the past five years (Yellow, *Global Brand Protection Summit* 2018). Attributed to product counterfeiting commerce, wider social costs of crime have been estimated to equate to US\$125 billion by 2022. These astronomical estimates research reveals are on the lower side, with ‘several, several hundred billion dollars more’ not included in the estimation and most likely causality due to the clandestine nature of counterfeit operations (OECD, 2008: 13) (Staake et al., 2009). The same OECD report suggests that this lack of a conclusive figure is attributed to unaccountable ‘domestically produced and consumed counterfeit and pirated products and the significant volume of pirated digital products being distributed via the Internet’ (OECD, 2008: 13). Further research indicates that these

estimates are contentious since they do not rely on grounded data or a defined methodology (Ibid). The contentious nature of the statistics debunks a direct figure to be derived from available data attributed to various issues with data collection and methods of measurement. A 2016 European Commission Report discussed how in 2015 the EU customs agencies initiated over 81,000 cases for a total of approximately 41 million in illicit goods whose domestic retail value (DRV) accumulated to over EUR 642 million, citing fashion and luxury goods industries as the most affected. Despite the seizure data and estimations presented, scholars systematically scrutinise the figures due to the absence of real data on counterfeit volumes and revenues which are difficult to procure, as well as the various types of counterfeits on the market which make identifying fakes even more challenging (Cesareo et al., 2017).

A range of statistical figures have emerged as broadly accepted within the research stream which posits the global trade at between 5% and 7% (Kim and Karpova, 2010: 79; Lee and Wokman, 2011: 289; Staake et al., 2009). Further research suggests updated reports and projections have amplified those figures as Wiedmann et al., (2012) contend the global trade accumulates to 10% of the global economy, as aforementioned and projected by the IACC. Building on this, seizure reports originating from the OECD, IACC and WCO vary in figures from US\$250 billion (Interpol, 2009) to US\$461 billion in 2013 annually – the equivalent of the GDP of Austria (EUIPO, 2013; Pithers, 2017) to US\$750 billion (Wall and Large, 2010). However, the figures presented may not reflect recent and updated projections.

Frontier Economics commissioned via Business Action to Stop Counterfeiting and Piracy (BASCAP) and the International Trademark Association (INTA), released a global impact report, updating the figures and citing the global economic value of counterfeiting and piracy was projected to reach US\$2.3 trillion by 2022. This projection, considering the negative impacts of both counterfeiting and piracy further stipulates a loss of US\$4.2 trillion from the global economy placing 5.4 million legitimate jobs at risk by 2022 (ICCWBO, 2017). It is important to note that this figure considers the loss of jobs as well as revenue in the projected figures. Despite staunch efforts to combat this threat by companies, government, and enforcement agencies as well as anti-counterfeiting bodies; counterfeiting is on a rampant rise with no indication of slowing down (Wilcox et al. 2009). This exponential growth revealed that this evolution into a trillion-dollar generating enterprise poses substantial problems at a multifaceted level with severe threats not only to industry, politics, and society, but raises far more pressing ontological questions.

Shadow Economies and Counterfeit Luxury

As outlined by Wall and Large (2010), the drivers behind the trade of counterfeit goods fall into three arguments: economic, societal, and cultural. The economic argument considers the financial impact of counterfeiting toward brand and rights holders, threatening their livelihoods, incurring losses in revenue, diminishing goodwill, and undermining the corporations (Wall and Large, 2010: 1098). Nearly every country is impacted by product counterfeiting as a point of provenance, destination, or transit

(OECD, EUIPO 2016). Rojek (2017: 33) confers, counterfeiting deters research and development opportunities of licit businesses – why invest in innovating trends when the fruits of your labour will be hijacked by copycats.

Further, it is important to distinguish that some designers consider the counterfeiting of their designs as a measure of success. Former Louis Vuitton creative director, Marc Jacobs when approached on the topic of product counterfeiting said, [he thinks counterfeiting is “fantastic, as long as I’ve been here, everything that we have done has been copied... We hope to create a product that is desirable” (Thomas, 2007: 276). Jacobs is not the only designer who shared this sentiment toward counterfeiting, Prada CEO Patrizio Bertelli called it part of the “game of fashion” adding “I would be more worried if my product *wasn’t* copied” (Thomas, 2007: 276). The societal argument rests on the assumption that society suffers because of a loss of tax revenue, which translates to a loss incurred by national treasures, as well as a significant loss of jobs. The premise of this argument lies in the idea that those lost public funds could be redirected to better society through social investments aiming to benefit the public (Wall and Large, 2010; Rojek, 2017). Furthermore, government and enforcement agencies have discovered linkages of counterfeit crimes with organized crime and terrorist activities. Thomas (2007) reports that the 2015 Charlie Hebdo terrorist attack was funded through the sale of fake goods on the streets of Paris. According to this finding, the guns used to carry out the attack on the satirical newspaper’s office were paid with monies procured from the sale of fake goods. This claim has been making headway in IP conferences and summits, suggesting IP officers and enforcement agencies are acknowledging the pernicious effects of the

counterfeit trade, previously unmentioned. Therefore, the criminological argument here finds that criminals are increasingly using counterfeit trade as alternative channel to receive funds to be redirected and repurposed to a more heinous criminal activity. It was found that the 1993 bombing of the World Trade Centre was funded by the sale of Fake T-shirts (Thomas, 2007: 275). Moreover, an Interpol (2003) report identifies ties to known organized criminal enterprises e.g. FARC and known terrorist groups, Hezbollah and Al-Qaeda. It is not contested that the sale of counterfeit goods does pose serious implications on the enabling of more sinister criminal activities, especially considering economies of scale. For instance, Bitcoin and Litecoin, forms of cryptocurrency, is a digital alternative to cash. This new currency has received plenty of media attention in the last year. In fact, many individuals have started investing in cryptocurrency as a result of volatility on the stock market causing early investors to become overnight millionaires. However, cryptocurrency has already come under heavy scrutiny. Cryptocurrency, such as Bitcoin and Ethereum, are especially difficult to trace and allow anonymity which makes it a magnet to criminal enterprises. It is already found that cryptocurrency is used as forms of payment on the Dark net on the black-market website *Silk Road* and has already been found to be used as payment to support nefarious operations, such as terrorism (Berton, 2015: 1; Rand, 2009). It will be fundamental regarding the growing trend of online counterfeiting practices, to observe and study the impact cryptocurrency will have on the funding of counterfeiting. Further supporting Quach and Thaichon's (2018: 247) claim of the dark side of technological advancement, 'in particular, social media as a channel of dark marketing'.

Governments have become aware of the serious problem counterfeiting poses on the economy. Furthermore, political regimes lose face and are seen as weak when low risk perceived crimes like counterfeiting are exposed to make trillions of dollars in currency annually. Motivated by this is the fact that many industries rely on Asia as a global supply and production centre. China and counterfeiting are almost synonymous – on the one hand, political players will seek out China when it suits the legitimate enterprises, however, condemn the manufacturing and trade of counterfeit articles. Another political issue lies in the legal frameworks currently in place. With under-reporting of seizures occurring in the UK as well as contradicting reports of estimations, seizures and an overall lack of information on the supply side aspects, more stringent and cohesive legislations prove necessary to be developed through the pooling of resources available from public and private enterprises. As stipulated in UK IPO's 2016/17 IP crime and enforcement findings, '433 people were found guilty of offences under the Trademarks Act and 47 people under the Copyright, Designs and Patents Act during 2016 compared with 490 and 69 the previous year' (UKIPO, 2017: 10). This finding raises the question as to whether this reduction of crime is framed as such, and therefore contradicts IACC's (2018) claims that a lack of enforcement and under-reporting has resulted in a decrease of UK reported seizures.

As stated in EUIPO's 2017 situation report, aside from direct economic impact, IPR infringements directly affect EU citizens, businesses, and governments. The criminological argument infers counterfeiting is a serious crime, yet it is treated with 'a slap on the wrist' approach. In France, the sale of counterfeits is punishable by a two-year

prison term and a EUR 150,000 fine, whereas the sale of drugs receives a ten-year prison term and a EUR 7,500,000 fine (Interpol, 2003). However, Thomas (2007: 295) notes that stricter laws are being implemented, in France, tourists caught bringing counterfeits into the country are fine EUR 300,000 and face up to three years in prison. For a tourist this is a huge deterrent, but for a seller the imposed fine is the equivalent to profits accumulated in a matter of months. EUIPO (2017:13) findings illustrate that postal consignments comprised seventy percent of cases reported in 2015 yet only accounted for two percent of the number of seized articles. This finding indicates that bulk cargo shipments remain the main threat regarding **volume and value** of counterfeit goods entering and economically impacting the EU. Furthermore, the surge in postal seizures indicate an increase in online consumption of counterfeit articles. Although the report suggests that defence at the borders is ‘far more effective than detaining items once they are in circulation’ (EUIPO, 2017: 12), Regulation (EU) No 608/2013 regarding small packages arises as a more effective measure to control small packages, yet, limited access to data on origin, provenance, means of transport or transshipment will prove problematic for the monitoring of the trade. Although Customs officials will have the seizures and numbers, other key identifying information will not be included making it difficult to trace the supplier.

Counterfeiting and Organised Crime

“Profits from counterfeiting are one of the three main sources of incomes supporting international terrorism: Magnus Ranstrop (former director from the

Centre for the Study of Terrorism and Political Violence at the University of St. Andrews in Scotland).

Ranstop's (Thomas, 2007) eerie assertion comprises a widely accepted fact amongst scholars and targeted stakeholders. As previous chapters discussed the ramifications of the counterfeit trade on consumers and luxury brand owners, as well as global trade; this section will address the wider criminological context of luxury product counterfeiting. Recent scholarly articles as well as official reports have determined links with counterfeit commerce and organized crime and the funding of terrorist activities (Wall and Large, 2010; Thomas, 2007; Bian et al., 2009). Luxury brands are reacting to the counterfeiters through the creation of IPR infringement and trademark protection offices, as well as other countermeasures. Brand protection officers are steadily alerting the industry and the public of the impacts of counterfeiting. Alastair Gray, Brand protection officer for Tommy Hilfiger, revealed during a recent TED talk experiences faced in fighting the illicit trade, but more shocking was the testament to counterfeiting's ties to OCGs and terrorism. In a talk titled, *How Fake Handbags fund organized crime and terrorism*, Gray brought the underworld of counterfeiting to public attention. Prior to this, news reports and a handful of documentaries have explored the real threat of counterfeiting, yet this is the first to single out fake luxury goods as a crime and serious threat to society. As previous studies discussed, consumers tend to view counterfeiting as a 'fun' (Kim and Karpova, 2010; Lai and Zaichkowsky, 2009) and 'victimless' crime (Thomas, 2007). However this perspective is lacking where more attention needs to be paid to bringing this topic to the media's and public attention, thereby establishing it within public

discourse. Stefano Betti, of the International Chamber of Commerce and former Interpol officer, recommended five major paths, which could be advocated to create effective deterrents against illicit trade: ‘legislative reform, notably to ensure that appropriate penalties are applied; the use of organised crime legislation in illicit-trade-related investigations; systematic resort to criminal justice treaties as global legal tools to facilitate the international exchange of evidence, in particular the UN Convention against Organised Crime; asset confiscation; and using more resources in intelligence-driven investigations and preventative criminal proceedings for the purpose of disrupting illicit trade operations “in the making”’ (Chaudhry et al., 2017: 3).

Recent report findings issued by government and enforcement agencies regarding this connection between counterfeiting and organised crime syndicates is rather limited and has to be addressed. Scholarly theoretical arguments and frameworks will be discussed to answer Spink et al., (2013) call for the development of a typology and method to understand counterfeiting as a structural operations component within an organised criminal network. Wall and Large (2010: 1109) posit that “while the link between general counterfeiting, organized crime and terrorism funding is widely accepted by the law enforcement and wider community” (Vagg and Harris, 1998; IPCG, 2009; Treverton et al., 2009; USDOJ, 2007; IACC, 2005) he questions the “strength of empirical evidence” to back the purported link between counterfeited clothing and luxury goods with organized crime and terrorism”. Despite the logics behind the economics of counterfeiting luxury goods; the mixture of the low levels of perceived risk combined with the enormous ROI (UKIPO 2007; Blakeney 2009: 11) and the IACC’s (2005: 24)

argument that the establishment of an International policing body, Interpol's Intellectual Property Crime Action Group in 2002 as further evidence to support this assertion as well as Hetzer's (2002: 319) viewpoint that "counterfeiting is one of the core areas of economic crime" and Saviano's (2008) finding of the Camorra and the Neapolitan Mafia's dealings with the counterfeit clothing industry, Wall and Large (2010) debunk the link between OCGs and product counterfeiting of luxury goods. The authors' critique stems from the claim that only one portion of the trade has been established to have some links to counterfeiting luxury goods and OC, i.e. the importation of the goods where the control exercised by organised criminal enterprises comes in to play a major role due to their highly structured network and therefore play the role of intermediary between producer, distributor and consumer. Wall and Large (2010: 1110) contend the misconception of a single counterfeiting conspiracy and argue that the more likely case to be established is that the fake luxury goods industry operates analogously to the licit fashion industry consisting of 'separate sub-markets' as a kind of 'assemblage'. They, however, overestimate that the fashion industry with its structured, ruthless and ephemeral nature would be a viable prey for traditional organised crime syndicates due to its 'highly complex logistical preparations' (Hetzer, 2002: 319) as previously examined in the methods of transportation.

The EUIPO (2017) report assesses that organised crime groups (OCGs) are indirectly involved in the production of counterfeit goods, rather, they operate as intermediaries in the supply chain process. According to this assertion, little is still known within the research stream about the producer's operation, yet the involvement of the OCGs at the

distribution level before it reaches the consumer is discussed in the argument for the links to OCGs and even terrorist funding. As Saviano's (2008) account illustrates, the importation of the counterfeit apparel was uncovered as one of the operations of the Camorra and the Neapolitan Mafia (Wall and Large, 2010). In the examination of the relationship, the report elucidates challenges for authorities to educate consumers of the provenance of the goods and its entanglements in other criminal enterprises.

Chaudhry and Cesareo's (2017) study further found, across BRIC territories consumers responded negatively to counterfeiting through the elicitation of the tactic which highlighted organised crime linked to counterfeit commerce, than any other tactics employed. This claim contradicts Large's (2015: 181) finding that linkages to organized crime and terrorism are seen by consumers as 'exaggerated and in some case, quite simply, as false'. The challenge, therefore, lies in averting from the previous consumer-responsibility approach which as Large (2015: 174) argues adopts a 'soft' approach that attempts to 'shame' consumers and 'attach social stigma'. Moreover, in curbing the demand of counterfeits there stands the presumption that criminalising the consumption of counterfeits is a viable solution. This notion is challenged by Large (2015), who finds that consumers either are of the opinion that consuming counterfeits is already a criminal activity, or it is treated as a 'normalised' activity, such as illegal drugs consumption, where the assumption lies that by making an activity illegal will ultimately act as a deterrent (Parker et al., 2002). The implementation of consumer-directed anti-counterfeiting measures (CAMs) is complex and therefore, needs to be further developed.

With regard to the intermediary role of OCGs in the facilitation of the counterfeit trade of luxury goods, EUIPO (2017) lists the indirect involvement carried out by the groups:

- Exerting a control of a particular territory and the protection offered by OCGs to counterfeiters
- Logic of economics of counterfeiting luxury goods equals to high profitability and a reduced risk of harsh criminal penalties

Identified areas of leading illicit IPR-infringing activities in the EU were listed as:-

- Wholesale importation of product counterfeits to be locally or regionally distributed;
- Importation of unbranded goods which are then transformed in local ‘product-completion’ centres, such as Bury New Road, where the product is affixed with corresponding faux logos to produce the counterfeited item;
- Local production of counterfeit good, specifically leather goods and shoes, as seen in the Neapolitan area of Italy;
- Local production centres to complete the transformation of the imitation into a non-deceptive or deceptive counterfeit;
- Wide acceptance of counterfeits being sold by small street vendors in various market areas, for example, in Camden and Portobello Road markets in London and the beach sides in Marbella.

According to this identification and analysis of OCGs intermediary functions, established roles in the report point to drivers, logistics support, storage keepers, front men or women (street vendors, purse parties), couriers, distributors, and personnel securing the import and its transportation. EUIPO (2017) logically contends an illegal mirror economy operating in parallel to the legitimate supply chain of genuine articles. Holding to this, they clearly define the areas and the channels of infiltrating the licit supply chain. The primary attributes addressed included the use of expertise, business models (OCGs) shifting toward digital business. The infiltration of the licit supply chains are highlighted as due to the following factors: accessibility to resources; poly-criminality feature of OCGs which enables an extended distribution network and various sources of income; document fraud via fraudulent retail licences which allow for the infiltration of the licit supply chain; corruption, for example the issuance of visas or work permits via corrupt public officials, network of borders and agents which rely on corrupt practices as well as bribery; money laundering of criminal finances via counterfeiting. Although OCGs tend to operate on a hierarchical structure, the discovery of a criminal network involved in IPR crime and money laundering was dismantled in La Junquera, Spain in 2016. According to the report. Key supply routes were used; China, Portugal and Turkey in the importation of the goods, counterfeiting was completed in Spain through the procurement of 'white' label products which were then affixed with logos and recognized brand names. A mix of legitimate and illegitimate practices were discovered while the network was structured into three homogenous groups with no defined hierarchical leader yet operated in a cohesive and coordinated format to share supply channels, warehouses, and money-laundering mechanisms. The investigation championed that a main European Union hub

for distribution of counterfeit goods was dismantled, however, these finding illuminates and iterates that this was merely a drop in the ocean with regard to the potential of many more similar criminal networks hiding in plain sight within the region.

The mainly cited challenges in combatting counterfeiting considers the following issues; the move to online distribution, tactical coordination and updated techniques to circumvent traditional counter measures, a lack of adequate powers through enforcement and governmental levels, widely accepted tolerance for counterfeit goods among general public (Rojek, 2017), and the prioritization of counterfeiting in enforcement and policing agenda due to its alleged links to OCGs and terrorism, as well as harsher penalties as the average maximum (based on submission from 12 Member States) amounts to EUR 126 691 for trademark crimes, while copyright offences garner a maximum period of imprisonment of four years and a fine of EUR 120 183 (EUIPO, 2017: 44). Further challenges identified by authors suggest that an awareness of the enforcement of penalties to deter persons (Chaudhry and Cesareo, 2017: 17).

The digitalization of the counterfeit trading and transport mechanisms will persist to affect the IPR crime landscape. Rojek (2017: 11) contends that the discussion of the counterfeit trade relative to local settings ‘disguises the organised, international dimensions of production and distribution’. Building on this Rojek (2017) turns to Hobbs (1998: 419) concept of a ‘global network’ as the appropriate perspective to apply in the articulation of the counterfeit trade. OCGs operate through local underworld exchange points yet interconnect with global supply chains, as iterated in the La Juquera case as

well as EUIPO's 2017 report analysis. This argument rests on the notion that a drive for illegal profiteering creates counterfeiters to begin with, what follows is a replication supplied via global sourcing, which thereby constitutes a global industry. This argument is supported by EUIPOs (2017: 55) conclusion that counterfeiting is now considered a 'global industry'. Along this vein, the network is influenced by several factors; 'demographic distribution, familial structures, ethnic distribution and cohesion, commercial practice, trading patterns and policing' (Rojek, 2017: 31). Despite the connection and relationship between counterfeiting, OCGs and terrorism (Interpol, 2003; EUIPO, 2017; UNODC, 2010; Rojek, 2017), no conclusive evidence supports this link as Wall and Large (2010) point out. Interpol (2003) suggests that the limited information available to the enforcement and policing agencies and databases as well as under-reporting are attributed reasons for this lack of data.

According to Spink et al., (2013) it is pivotal to establish that anti-counterfeiting strategies are based on comprehending the nature of the fraud and the fraudster (Spink, 2011; Spink et al., 2013). In the development of a typology of counterfeiters, Spink et al., (2013) demands an analysis of offenders, situation and victims can be insightful in the creation of systematic countermeasures for specific crimes. Against this backdrop, in order to establish counterfeiting as a global organised criminal enterprise, this research requires Spink et al., (2013) definitions of counterfeiters, counterfeiting and offender groups. A qualitative methodological undertaking will attempt to uncover whether there are indeed vulnerabilities in the licit supply chain, the prevalence of deceptive counterfeits and the identification of anomic and/or hoodwinked consumers (Rojek,

2017). A critical analysis of the fraud and fraudster will ensue based on in-depth interviews as well as investigative participant observation of the counterfeiting landscape within the EU. The trade of counterfeit goods is a criminal act with punishments and regulatory frameworks in place to protect intellectual property rights holders. However, as previously discussed, counterfeit commerce produces a ripple effect which affects both the micro and the macro environment. The logic of an organised global counterfeit trade relies on the consistent fluidity between the local and the global (Rojek, 2017: 34). Hence, combating the illicit trade necessitates a multi-level, international coordination between police, customs, and national trade regulators. The operational premise of counterfeiting supports an international society of producers, distributors and consumers bound together by their affirmation of intellectual property theft. In order to achieve a holistic perspective of the counterfeit trade, anti-counterfeiting researchers must attempt to understand the opportunity structure and its intrinsic aspects before discussions of counter-measures (Spink et al., 2013: 2). In many cases, counterfeiting activity is not considered a crime, a civil violation or even unethical in many cultures or situations (Ibid). Although counterfeiting is typically motivated by economic gain via the deception of consumers, this alone does not effectively explain the cause and effect of all counterfeit crimes.

Staake et al., (2011: 658) identified five different groups of counterfeiters that confront brand owners; 1) disaggregators, 2) imitators, 3) fraudsters, 4) desperados, 5) smugglers.

Spink et al., (2013) confer no singular structure for any criminal organisations, and suggest criminologists employ ‘a standardised system’ for examining trends in transnational organised crime in – ‘groups’ where criminals working together in, ‘clusters’ based geographic localities and ‘markets’ controlled by products including distribution, sales and product support networks” (UNCICP, 2000). The UNCICP report hones in on ten central variables to differentiate counterfeiting operations, identified as *structure, size, activities, transborder operations, identity, violence, corruption, political influence, penetration into the legitimate economy and cooperation with other OCGs* (Spink et al., 2013: 7). The same report highlights five hierarchical typologies: *standard hierarchy* (single hierarchical group with strong internal systems of obedience), *regional hierarchy* (hierarchically structured groups with strong internal networks of control and discipline but with relative autonomy within a geographic locality), *clustered hierarchy* (set of criminal groups which have developed a system of coordination and control), *core group* (tight but unstructured group, decentralised network engaged in criminal activities) and *criminal network* (loose and fluid network of individuals with specific expertise). Furthermore, a typology for counterfeiting exists as follows; **adulterate, tamper, over-run, theft, diversion, simulation and counterfeit.**

According to this typology, counterfeit applies to both deceptive and non-deceptive counterfeits with the remaining types falling into the grey-market goods or blur counterfeiting (Bian et al., 2009). Previous anti-counterfeiting policies have sought to place the responsibility of deducing counterfeits on the consumer. Large (2015: 173) finds this approach complex and problematic on the basis that ‘counterfeiting is not alone

in this individualised or community responsibility approach to crime control’ as found in policy areas related to youth crime (Muncie, 2006), alcohol and night-time economy (Hadfield, 2006) and community crime prevention schemes (Hughes, 1998). In the case of luxury brand owners, a plethora of tools and technologies are available to combat the threat of counterfeits.

In addition to the previously mentioned customs agents and enforcement bodies (ACG, IACC, INTA, BASCAP, INTERPOL, EUIPO, EUROPOL), the researcher finds an intellectual property industry specialising in the brand protection to erode counterfeiting. Brand protection enterprises have developed and outsourced technologies and software to better protect brands from the online and offline threat of counterfeiting, albeit counterfeiting persists. In accordance with Wall and Large (2010) the research finds enforcement is on the weaker side, the findings suggest that the issue lies with the current legal frameworks in place. Current legal systems fail to consider the magnitude of the threats of the digital economy. Despite the implementation of brand protection, providers only notice a slow and small decline in counterfeits available on the Internet and offline marketplaces. Further efforts are downplayed with the introduction of astronomical estimates as projected through governmental reports on counterfeiting. Brand protection enterprises believe that a centralised approach, although impactful, will serve as an updated approach to the previous ‘whack-a-mole’ model. RFID tags have been touted through retail tech firms, industry professionals and luxury brand owners as the current breakthrough technology to reduce counterfeiting and erode issues of supply chain provenance, transparency, and authenticity. In addition, RFID technology produces data

insights, which can be translated into marketing opportunities. The implementation of technologies and the argument for a strategic anti-counterfeiting solution will follow.

Despite brand protection providers' claims that counterfeiting is slowing down; a claim that contradicts projected estimates, the problem is rooted in a more complex and interconnected underground economy. Recent observations at the fourth Brand IP Summit exposed several current threats; however, one struck a chord like no other and that was the acknowledgment and alarm raised over counterfeit commerce funding terrorist activities and the links with slavery.

CHAPTER TWO

COUNTERFEITING AND ITS DISCONTENTS

A Historiographic Account

Once only haute couture (high-dressmaking or high-sewing), where ateliers created exclusive garments and accessories that were ‘made to order’ for private clients with the pecuniary means. Today, luxury brands have democratised their offerings to attract wider consumer segments and demographics, through tailored and viral guerrilla ad and marketing campaigns and the pervasiveness of social media. For instance, luxury maisons have created two distinct lines within their offerings with distinct price points; the lower price point while still quite expensive offers ‘Ready to Wear (RTW)’ or ‘Pret a Porter’ products available on e-commerce websites and luxury stockists and are typically heavily branded with the design logo (LV, Fendi, Balenciaga, Moschino, Prada). The exponentially higher price point reflects designs which are not easily discerned or identifiable from the brand, they carry a discreet and almost hidden design logo highlighting a preference to the design of the garment as opposed to the branding. In this setting, persons purchasing the higher price point are not motivated to be ‘seen’ in designer, on the contrary they prefer discretion and subtle contrivances.

Prior to the arrival of the Internet, social media, globalised market forces and e-commerce retail; luxury goods were used to signal opulent wealth and status according to historical anecdotes. Luxury’s foundation lies in France and the royal courts. By royal

decree sumptuary laws were created and provided the court with socially restrictive sartorial standards, which asserted control over courtiers from what, when and how they were permitted to dress. The enforcement and restrictions were meant to prevent the masses from imitating and emulating the noble class, in addition to constraining conspicuous consumption. This practice of dictating lengths of dresses and necklines passed down through various courts and is epitomised in various periods throughout history. One visit to the National Portrait Gallery in London will offer patrons and visitors a chance to gaze at the fashions of the day which changed between centuries – what was fashionable in the Elizabethan age would not be de rigueur to a Flaneur or Dandy of the Regency age.

This adornment of luxury dates to prehistoric times from the wearing of furs, silks, precious metals such as gold and silver. When the conquistadors invaded the Mayans and Aztec civilizations, what they found were indigenous peoples ornamented with gold jewellery which elucidated the richness of the land and the people. The Chinese use of silk embroidery went as far back as twelve thousand years ago, along with the Egyptians and Persians in the second century BC (Thomas, 2007: 6). According to ancient Egyptian religious belief, when your soul passed on to the afterlife you were weighed by the god of the Dead, Anubis, based on what luxuries you brought with you. As such became the practice of Egyptian pharaohs as their first order, to construct their burial chambers and tombs laden with gold and various luxuries to ensure a prosperous and safe journey to the afterlife. This practice of dedicating luxurious goods and objects as religious offerings trickled down throughout history in different religions. *Ratnaraj*, the Sanskrit word for

ruby, translates “king of precious stones” and thus Hindus believed that through the offering of this gemstone to the god Krishna, they could be reborn as emperors (*Vogue*, Malméd, A: 2017.04.04). The mystical properties associated with luxury and precious stones are exemplified in the Bible and other religious texts.

Before Veblen’s view of luxury as ‘wasteful’ and ‘barbarous’, the argument of whether luxury is ‘waste or not’ found a place within discourse circa 700BC, said Kenneth Lapatin, a curator of antiques at the J. Paul Getty Museum in Los Angeles, California (Ibid). On the other hand, ‘faking luxury’ was seen as disgraceful amongst the Greeks, according to Lapatin. One such anecdote Thomas (2007: 7) offers is through the ancient sculptor Phidias who sought to construct a statue of Athena in the Parthenon in Athens out of inferior materials – gold gilded marble – which was vehemently denounced by the assembly with cries of ‘Shame’ and the insistence that he use gold and ivory instead.

The Dutch Baroque Period painter, Johannes Vermeer’s *Lacemaker*, personifies the prosperity of the time through his use of the luxury commodity that spurned what was known as the *Lace Wars* between France and Venice during the late 1660s (St Clair, 2018). A decorative luxury commodity, lace, served no other function than to signal one’s status, taste and wealth. The ‘double bind’ between luxury commodities and political economy demands a rigorous approach within fashion organisational texts.

Luxury has often been met with controversy, following the cultural turn it has culminated in a rise in prominence and popularity of luxury brands set against the milieu of social

inequality, thereby provoking questions about what luxury means to individuals. In contemporary society, an individual's opinion of what luxury means shies away from traditional conceptions of luxury and can address issues of space and time, its aura (Benjamin, 1933).

In ancient civilizations such as the Romans, Greeks, Egyptians, Mayans, Incas, and imperialist China, "hallmarks and seals served as marks of origin: you knew who made your goods" (Thomas, 2007:272). With the advent of the industrial revolution around the mid-nineteenth century, goods were no longer easily traced as the era of mass production stepped in. To differentiate themselves from competitors, firms trademarked their work and their logos, which translated into a guarantee to consumers of their investment and perceived quality. Thomas (2007) notes that from the 1950s trademarks and logos became integral to the company through consistent marketing and advertising efforts, which ultimately transformed and evolved into the recognition of brand symbols. Luxury brands capitalised on this by cementing their brands as symbols of status, wealth and distinction. Brands tell a story; they transfer seemingly mystical qualities on the bearer of the goods. As Kapferer (2009) posits, luxury brands symbolise prestige, which is declared by the consumer's sartorial display of those brands. In a consumer society, the consumption of luxury brands suggests upward social mobility. On the other side of this booming industry, is an underground, shadow economy, which fosters a network of insidious crimes such as child labour practices, slavery, organized crime and the funding of terrorist activities.

Counterfeiting may be considered the second oldest crime and has been around since the beginning of civilization (Thomas, 2007). Crimes most associated with counterfeiting in the past have referred to counterfeited money, originating in the sixteenth and seventeenth centuries as part of the coinage exchanges involving smuggling, minting privileges, alchemy and foreign trade in Genoa. A famous example of counterfeiting used to illustrate economic power occurred in Renaissance France, when Papal supporters, over a ten-year period directed a parallel mint in order to undermine the Protestant King's official issued coinage (Chaudhry et al., 2009). However, unlike the lax enforcement measures today coupled with ineffective global policing aiding and abetting the rise of the trade, a perpetrator of such crimes back in the era of enlightenment would be boiled alive. Such harsh punishments were not uncommon for counterfeiters of the time; during the sixteenth century Charles the Fifth had counterfeiters' hands chopped off for producing faux tapestries. Even harsher penalties were demonstrated in France during the reign of Charles the Ninth, where the death penalty was the mode of punishment for counterfeit criminals. Interestingly, these archaic penalties provide insights toward the perception of counterfeits and counterfeiters during that period.

Circa 100 BC, during the last century of the Roman Republic, citizens saw a flourishing period of upward mobility. However, acceptance by the patrician upper classes was no easy task and the nouveaux riche had to prove their worth through possession of artefacts the old moneyed Romans possessed. Cicero, Roman politician and philosopher, sought inclusion by the establishment and thus procured a citron wood table valued at one million sestertii at a time when the average annual salary was one thousand sestertii. This

procurement by Cicero created a demand where the nouveaux riches had to have the ‘It’ table, which most could not afford and therefore resorted to having carpenters copy it in lower quality wood. According to Jonathan Stamp, classical historian and documentary filmmaker, “Wealth itself didn’t confer status, you needed wealth plus something else, like objects” (Thomas, 2007). As Pierre Bourdieu (1984) confers, this mark of ‘distinction’ remarks on one’s position on the social ladder. For Bourdieu (1993 in Chevalier, 2012: 11) the consumption of luxury brands demonstrates one’s social standing with its ‘dimension of social communication’.

Chaudhry et al., (2009) expound a correlation between the advent of trademarks and its ensuing opportunity for the eventual onset of counterfeiting (Ibid, 2009: 21). Historical evidence finds that ancient civilizations, such as the Babylonians and Egyptians, ‘marked’ inscriptions from previous civilizations on monuments to ‘increase their proceeds and legitimacy’ (Hopkins, Kontnik, & Turnage, 2003). Turnage et al., considers this signage as the precedent of trademarks, which continues to appear throughout history in China and Greece in the form of marked pottery some 4,000-5,000 years ago.

Following this signage of ownership or origin, Chaudhry et al., (2009) finds merchant mark’s beginning to appear circa tenth century. Fast-forward to the nineteenth century, cheap counterfeits of checked and striped Louis Vuitton trunks prompted the luxury house’s son George Vuitton in 1896 to invent the company’s signature logo print of interlocking LVs and Japanese floral symbols. Consequently, this creation of the famed LV monogram, inadvertently created branding (Phillips, 2005). For Miuccia Prada, “It’s impossible to eliminate the logo today, the recognition of the brand is too important”

(Thomas, 2007). This reverberates the ideology behind branding today – it has more to do with the logo than with the product.

Owing to the luxury brands successful marketing of their products ensuant in an insatiable demand which could not be met and advertised products which many consumers could not afford, thus fabricated a thriving counterfeit industry to satiate that demand. Today, when we consider counterfeiting trade, we unequivocally refer to Asia as the source of supply. In China, counterfeit goods amount to approximately 12.5 percent of the country's total exports and over 1.55 of its Gross Domestic Product (GDP) (EUIPO, 2017: 18). According to the same report, 72 percent of product counterfeits presently in circulation within the EU, Japan and USA have been exported from China (GIPC, 2016; EUIPO, 2017: 18).

EU funded *Project Couture*: Public and Private Partnership for reducing counterfeiting of fashion apparels and accessories, provided an assessment on the enforcement of counterfeiting regulation in the UK, France and Italy. The findings indicated a gap in the criminological knowledge base about counterfeiting and IPC (Large, 2015: 3). The author highlighted that despite efforts to recognize counterfeiting as a serious crime problem, with claims of linkages to organized crime, economic crime and terrorism, research to date have failed to 'attract significant attention in the criminological world' (Large, 2015; 3). EU reports found that 56 percent of all counterfeit confiscations are all cases being of Chinese provenance. Within the same findings, it was discovered that long-distance cargo train connections between China and the European member states could potentially offer

a new strategic route for the transportation of counterfeits. Report findings assert that, along with China, Hong Kong, Singapore, Malaysia, Vietnam, and Turkey were noted as key supply routes to the EU for the trade of counterfeit articles. For instance, a routine anti-fraud activity in 2015 by the Customs Anti-Fraud Unit of the Italian airport of Milan Malpensa seized 793 counterfeit branded mobile phone covers, of which 715 fraudulently infringed the Chanel brand logo. Furthermore, it was found that China, Hong Kong, Singapore, Turkey, and Thailand were key supply routes which supplied counterfeit luxury articles such as clothing, leather goods, accessories, and footwear. Local E-shops originating from Thailand were identified as specifically targeting the UK or that distributors are operating from within the region (EUIPO, 2017: 21). This finding correlates with previous reports, which have listed Malaysia, Vietnam, Thailand, and Turkey as new threats of counterfeit goods provenance. Further, a study on counterfeit research conducted between June and October 2021 found 56,000 active counterfeit sellers on Instagram with 65% of the accounts based in China, followed by 14% in Russia and 7.5% in Turkey (Reuters.com). New revelations conclude Russia is a new entrant to the counterfeit markets.

Identified modes of transport for the importation of counterfeit goods found that traditional methods are still used, with maritime shipping containers as the biggest mode to transport counterfeit goods in bulk. However, an increase in the postal shipments and seizures needs to be taken into serious consideration. Past literature does not clearly specify trade routes, nor do they identify key modes of transport. The inclusion of this information is pivotal to inform the research stream. The utilisation of roll-on-roll-off (ro-

ro) ships as well as the expanded capacity of the Tanger Med FTZ does imply an increased risk in the sea route and ports with ro-ro terminals, (Port of Hong Kong) for counterfeiters. Once the goods have been cleared or rolled off the ships, they are then loaded into either truck, vans, passenger cars or aeroplanes for transport to their final destination (EUIPO, 2017: 23). In the EU, some goods are moved via EU land borders in lorries or long-distance buses particularly in the south (Ibid). This finding suggests counterfeiters are extremely organised with a substantial cash flow to orchestrate the above transport modes. It was revealed that whenever goods change hands, i.e. from one transport mode to another, the price on the goods doubles (Thomas, 2007).

The duration of a Beijing to London train takes eighteen days; half of the time needed to receive maritime consignments. However, despite the increase in trains arriving from China, seizure numbers specific to this method of transport are consistently low (EUIPO, 2017: 23). Another noted finding declared Free Trade Zones as being used to foster international IPR crime, with cases reported involving counterfeit handbags and wallets. The difficulty in regulating counterfeit activities in FTZs is mostly due to the lack of collective IPR-enforcement standards (EUIPO, 2017: 25). Based on EUIPO's (2017) report, they identify and compare the digital legal and illegal supply chain relating to pirated goods. However, the omission of the same method to approach the counterfeit trade suggests very little data on the origins of the counterfeit suppliers. This can be attributed to a number of reasons; lack of information due to the clandestine nature of counterfeiting as well as the ties to other criminal networks, limited knowledge on one

specific counterfeited product category e.g. pharmaceutical distribution, luxury goods distribution etc.

Domingo Navarette, a seventeenth century Spanish priest commented, “Chinese are very ingenious at imitation...they have imitated to perfection whatsoever they have seen brought out of Europe” (*The Economist* 2003). In China, the ability to precisely copy was considered a mark of social status and as such became a natural course to follow. Today, China is the world’s manufacturer and as Thomas (2007) posits is attributed to two occurrences: the democratisation of luxury and the rise of China into a capitalist market economy. During Donald Trump’s presidency, intellectual property theft was condemned and considered a major factor in trade sanctions against China (BBC, Bloomberg, NYTimes, 2017). The need for a concerted approach to establish and foster better intellectual property practices is required from a policy standpoint.

While luxury brands, like Burberry and Louis Vuitton, shifted their operations to China, simultaneously this opened the industry of counterfeiting with the convergence of big supply to meet big demand. Wall and Large (2010) highlight the exponential growth of the counterfeit industry citing a surge from 1996 at an estimated \$200 billion to approximately \$750 billion in 2010. Furthermore, Norum and Cuno (2011:27) contend counterfeit commerce has multiplied 10,000 times over the last twenty years. Yet, for all the facts, figures and ruminations, relatively little is known about counterfeiting practices, counterfeiting strategies, private enterprises invested in curbing the counterfeit trade as well as anti-counterfeiting strategies, within the literature reviewed.

Taxonomy

There exist many inconsistencies between *counterfeit* and *piracy* (Spink et al., 2013). For instance, Lai and Zaichkowsky (1999) refer to two forms of counterfeiting: counterfeit and piracy, which is dependent on the counterfeiter's intention. Along this vein, Staake et al., (2009) contend, the bulk of publications place piracy and counterfeiting together with other types of illicit trade and thereby deprives the opportunity to understand counterfeiting as its own, unique problem with a specific set of characteristics. Notable contributions have been made by marketing researchers to highlight the incongruence among the terms. They identify the need for a clear and coherent definition of counterfeiting as paramount in studies (Hoe et al., 2003; Phau et al., 2001).

Staake et al. (2009) finds that the current definition found in the Agreement on Trade-related Aspects on Intellectual Property Rights (TRIPS) hinders the development of a comprehensive analysis regarding the counterfeit market and its underlying supply chain. Hence, for the sake of furthering research in the field, employment of the following definition of counterfeit trade will be considered to encapsulate the issue of product counterfeiting as it relates to the luxury industry:

“Trade in goods that, be it due to their design, trademark, logo, or company name, bear without authorization a reference to a brand, manufacturer, or any organisation that warrants for the quality or standard conformity of the goods in

such a way that the counterfeit merchandise could, potentially, be confused with goods that rightfully use this reference” (Staake et al., 2009: 322).

Following the question of definitions, it is important to highlight previous efforts of defining counterfeits, which have proved problematic. Kim and Karpova (2010) refer to Bamossy and Scammon’s (1985) definition of counterfeit as copies with the intent to deceive consumers that the goods are authentic. Furthermore, they differentiate between ‘counterfeits’ and ‘knock-offs’ referencing Prendergast’s et al., (2002) definition of knock-offs as copies which are not identical but similar to the real goods in “essence, name, form, or meaning” (Kim and Karpova, 2010: 79). From a buyer perception, this distinction is contentious with the introduction of the two categories which counterfeits have been previously grouped into: *deceptive* and *non-deceptive* counterfeits. The problem with Kim and Karpova’s (2010) definition exists in that the employment of Bamossy and Scammon’s (1985) counterfeit definition, does not consider the non-deceptive aspect of counterfeiting where the consumer knowingly purchases a counterfeit or fake good. The deception in this vein is positioned toward on-lookers in a social setting and ‘hoodwinked’ consumers. Furthermore, this definition of ‘knock-offs’ aligns with the qualities of non-deceptive counterfeits and/or imitation products, which lean towards issues pertaining to design piracy (Le Roux et al., 2016). However, in addressing the terminology quandary associated with counterfeiting, the research notes that counterfeit products are also referred to as replicas, imitations, bogus, fakes, copy, and knock-offs (Lai and Zaichkowsky, 1999). However, amidst this, Spink et al. (2013: 3) purports that endeavours to ‘harmonise terminology are occurring’.

With specific regard to the types of counterfeiting discussed in existing literature; this study considers three types of counterfeiting 1) *deceptive* (Grossman and Shapiro, 1988), 2) *blur counterfeiting* (Bian, 2006) (i.e. from a buyer perception, consumer are not 100% sure whether products are genuine, counterfeit, genuine from a similar import arrangement, genuine but on sale, or even stolen merchandise) and 3) *non-deceptive* counterfeits (Grossman and Shapiro, 1988). Furthermore, Lai and Zaichkowsky (1999) identify an additional category: *grey markets* allow the sale of overruns on the market illegally. However, this fourth addition correlates to Bian's (2006) discussion of *blur* counterfeits.

Building on this, Rojek (2017: 28) distinguishes *deceptive* counterfeits as, 'fake products or knock-offs that consumers **believe** to be authentic brands' and *non-deceptive* counterfeits which are goods that are identified as inauthentic by particular information cues such as 'quality, purchase location, price or materials used to make the product' (Juggessur and Cohen, 2009). This recognition of situational cues corresponds to the four P's used in marketing practices: price, place, product, and promotion (Kotler, 1998). This finding supports claims of an analogous illicit trade, which mirrors the licit trade it derives, and thereby mimics the modes of production (Rojek, 2017; EUIPO, 2017).

According to an OECD report titled *Fake goods, Real losses*, **primary** markets represent markets intended to deceive consumers whereas 'those that are *openly sold* as fakes to consumers' comprise **secondary markets** (OECD, 2017: 24) which supports the

expansion of shadow economies. Along the supply chain, from the production, distribution and recently, the consumption of fake goods is judged as a criminal offence, in countries like France and Italy. In France, tourists caught bringing counterfeits into the country are fined EUR 300,000 and can serve up to three years in prison (Thomas, 2007: 295). However, Large (2015) problematizes the current consumer-responsibility approach (Consumer Direct, 2010) arguing that this anti-counterfeiting policy tactic is fundamentally flawed. For instance, the author argues the implications of deploying a criminal justice enforcement policy that accentuates the role of the *non-criminal* participant, (the consumer) since it is not deemed a criminal activity to purchase a counterfeit in England and Wales, for example. Furthermore, such an approach is not only problematic but over-deterministic as it fails to consider different consumer segments as well as the proliferation of online purchases which are not knowingly consumed as counterfeits. Further issues lie in the anti-counterfeiting approach which advocates that through education, consumers will deter from consuming fakes, especially with the threat of online purchases as well as the level of deceptive fakes available.

While the consumption of a fake Gucci bag is purchased at 5 percent of the original cost and may be considered harmless; there are severe consequences to enabling an illicit industry. Previous academic findings thus far have highlighted a societal, economic and cultural argument (Wall and Large, 2010) against counterfeiting. Yet Rojek (2017) briefly highlights a possible political argument to be made in addition; ‘the production, distribution and exchange of counterfeit commodities have political implications for understanding the power hierarchy of capitalist society’. This connection has been drawn

between countries facing high corruption and high counterfeiting practices. This finding is contemporary when considering the general public's growing disdain for corporations viewed as anti-big business/Robin Hood mentality. In fact, a recent empirical study tested the emotive response; *schadenfreude* and the purchase intentions of a luxury brand (Marticotte & Arcand, 2017). The study presented a scenario involving an authentic 'Louis Vuitton' and a counterfeit, which Staake et al., (2009) calls for empirical research in the investigation of consumer's attitudes when confronted with a real good as well as a fake. Marticotte and Arcand's (2017) findings illustrate that *schadenfreude* is 'positively correlated with the intention to buy and the attitude toward counterfeiting and negatively correlated with the attitude toward the original brand'. Marketing studies have opted to focus on the demand side investigations, spending considerable research exploring consumer attitudes, behaviour, and motivations toward the consumption of counterfeit articles (Kim and Karpova, 2010; Lai and Zaichkowsky, 2012). However, a coherent understanding of the motivations underlying consumers' consumption of fake luxury yet remains indefinable (Zaichkowsky, 2006; Wilcox et al., 2009).

Arellano (1994) and Hilton's et al., (2004) discussion of 'vanity' and 'waste' of the luxury goods industry, follows Rojek's (2017) analysis of motivational drivers behind non-deceptive counterfeits consumption. Through the acquisition of non-deceptive luxury counterfeits, consumers gain positive status differentiation and simultaneously comment upon the vanity and waste of the luxury goods industry' (Rojek, 2017). This argument reverberates Veblen's (1953) account of modern society as a 'latter-day form of barbarism engaged in an irrational orgy of waste and futility'. A few studies (Wall and

Large, 2010; Staaque et al., 2011; Rojek, 2017) have mentioned the potential environmental impact of counterfeiting attributed to the adverse effects of the counterfeiting industry accumulating in conspicuous waste as well as the hazardous use of non-regulated toxic substances and dyes used to treat and produce counterfeits. Furthermore, there exists a gap in the literature on discussions of the human cost of counterfeiting, with the exception of Thomas' (2007) investigations into the working conditions of counterfeit factories in China's Guangdong province. The wider social impacts will be discussed within this research.

The Impact of the Counterfeit Trade in the United Kingdom

The Global Anti-Counterfeiting Group reported that 11 percent of the world's clothes and footwear was fake, with the fashion industry incurring losses up to US\$9.2 billion per annum to counterfeiting while counterfeiting represents 3.37 of all global trade (OECD, 2019). EU territories have estimated that more than 20 percent of clothing and shoe sales available in their markets are counterfeit (Blakeney 2009: 7). Counterfeit clothing and footwear, along with electronic and electrical equipment, were cited as the 'most frequent counterfeit products smuggled into the UK' (OECD, 2017: 15). Adding to this, a brand protection officer from a disclosed UK sportswear retail distributor commented, at the fourth Global Brand Protection IP summit of evidence that counterfeits were found to infiltrate the brands' legitimate supply chain, finding its way into stockrooms and sales floors. The fakes were detected during the returns process, when the brand protection officers were flagged for the non-genuine quality of the products in question. This finding

confirms Wall and Large's (2010) claim of improved quality of fakes on the market and iterates the concerns that the fakes are becoming harder to distinguish between the authentic articles. Furthermore, in 2006 sportswear giant Jordan ran ads and created merchandise unknowingly featuring fakes (*Devialet*, IP Summit 2018).

Key findings of an OECD (2017) report the importation of counterfeit products to the UK accounted for nearly GBP 9.3 billion in 2013, representing 4 percent of UK imports and notably higher than the estimated 2.5 percent average share of fake goods in world imports. OECD cite current impacts on the UK include sales revenue (total volume of lost sale by UK intellectual property owners totalled GBP 8.6 billion in 2013, impact on consumers accounted for GBP 100 million, impact on jobs (60 000 jobs lost, 1.15% of all employees in the UK– 40 000 in the retail and wholesale sector and 20 000 in the manufacturing sector) and impacts on government revenue (GBP 3.8 billion lost in tax revenue – GBP 2.4 billion in counterfeit goods). Further findings indicate thirty percent of counterfeit imports were fake leather goods, comprising leather goods, watches and footwear, which amounted to over fifty percent of fake goods in the UK. Contradictory to the OECD's findings revealed the global counterfeit trade infringing UK IP totaled GBP 13.4 billion in 2013, noting that main provenance of counterfeit goods from Asia specifically China, India and Turkey (EUIPO, 2017). The report found that many clothing and accessories originate from Turkey via postal consignments. However, like the EUIPO 2017 report, products which are mainly targeted for counterfeiting include apparel, leather goods, footwear, perfumery and cosmetics, totalling over fifty percent of fake goods in the UK (OECD, 2017: 6). The discrepancy noted in the varying estimations

of the impact of the trade in the UK correspond to previous assertions held by authors (Rojek, 2017; Wall and Large, 2010; Bian et al., 2016). This finding reiterates the US GAO's 2010 study, which 'asserted no single approach could be used to quantify the impact' and further 'criticised all existing and widely used estimates of economic losses that cannot be substantiated and critiqued the assumptions used for substitution rates for fake, as opposed to legitimate, goods' (Chaudhry, et al, 2017: 287-288). Furthermore, in 2011 the EC's 'Impact Assessment' on OHIM and the EU Observatory argued 'that the lack of reliable objective data within existing studies made it impossible to scope the impact of IPR infringement or measure trends' (Ibid). The report concludes that apart from a lack of data needed to be collected over a prolonged period, an alternative methodology requires development as previous work is mainly theoretical and therefore does not offer robust empirical support (OECD, 2017).

From a governmental perspective, counterfeiting presents a plethora of issues ranging from lost tax revenues, increased rates of unemployment, added expenses in ensuring compliance with current IP legislation, and countering public safety threats as well as labour-market distortions (OECD, 2017: 15). Along this vein, rights-holders report increased difficulties in the enforcement of their rights in the UK (IACC, 2018: 46). Foremost of these concerns is a noticed decline in the number of seizure notifications received from Customs, despite an abundant availability of counterfeit goods in the country's physical retail markets, e.g. Camden, Portobello Road and Bury New Road. This follows recent EU statistics suggesting a sizable decrease in seizures of over 80% in the UK between 2015 and 2016 (Ibid). However, this decrease in seizures remains

relatively low when compared to other EU member states. This IACC 2018 report therefore infers that these challenges are related to a variety of factors: ‘a lack of resources for front-line Customs officers and a decreased priority for IPR enforcement’ in favour of more pertinent issues, such as immigration and other core duties of the agency (Ibid). This finding stipulates that rights-holders will have to resort to the employment of private agencies to assist in effectively dealing with the problem of product counterfeiting.

The EUIPO 2017 situation report on counterfeiting named the United Kingdom as a particular hot spot of counterfeit footwear (EUIPO, 2017: 67). In December 2017, the Global Anti-Counterfeiting Group, headquartered in the UK, revealed a ‘counterfeit street’ or as newspapers dubbed it, ‘the fake capital of the UK’ (*Independent*, Lusher: 2017). Bury New Road has emerged as the Canal Street and Santee Alley of the UK – notorious hotspots for fake luxury. Here, a faux Louis Vuitton costs GBP 23, while a fake mulberry handbag can run you at GBP 18; approximately 2-3 percent of the actual cost price for the authentic version at GBP 795. A shopper would be advised that whatever product they desired would be available within 24 hours, if it was unavailable. Bury New Road’s underground market has all of the workings of a highly organised criminal operation with a network of spotters who use burner phones to inform the counterfeit sellers of the cop’s arrival and key fobs that bring shop shutters down at the click of a button. The shop owners and sellers of counterfeits are habitually illegal immigrants resorting to product counterfeiting as a form of livelihood.

Following this, in December 2017, a raid on eleven shops, carried out by police, trading standards, HMRC and the Immigration Service uncovered and seized three shipping containers filled with fake clothing, handbags, trainers, perfumes and jewellery, totaling a value in excess of GBP 3 million. However, this seizure paled in comparison to what was uncovered in a small upstairs back room – thousands of designer labels and a machine for assembling the goods would transform the unlabeled, sans logo goods from “blank” to “brand” (Lusher: 2017). This finding revealed that fake goods were potentially being constructed abroad with all the product specifications, then imported into the distribution regions and subsequently transported to Manchester to be finished off in conditions comparable to developing world sweatshops, right here in Britain. These methods to evade detection during supply routes are not new.

The 2015 Canadian film *Counterfeit Culture*, included an exposé of fake goods, which revealed Omega fake watches destined to the US were disguised in children’s toys to be locally assembled before ending up on the sales rack. However, this does expose the smarter, craftier and more organised routine developing around the sale of fake goods. An investigation pursued by Thomas (2007) uncovered similar methods employed by counterfeit sellers in known counterfeit hotspots. Santee Alley, just off Los Angeles Street and the third most frequented destination by tourists, is home to counterfeits in Los Angeles. Upon investigation, one of the stalls in the alley housed Chanel Cambon-style purses with a distinct ‘OC’ instead of the luxury maison’s signature interlocking “CC”, however, closer inspection revealed that the “OC” tore off to reveal the famous Chanel “CC” logo (Ibid). Furthermore, the brand logos were frequently not added to the product

until they reached the point of sale, to evade detection from Customs officials and relevant authorities. This suggests that more counterfeits are being shipped disassembled and later assembled once they've reached the local distribution centre, for example, Bury New Road in the UK. This finding corroborates EQUIPOS (2017: 17) report that potential criminal groups possibly import the brand labels and tags to append to unbranded apparel. Moreover, the implication of this finding illustrates an organised element and a trans-border operation which employs the same methods in the UK and the US. This shocking reality iterates that this is not a 'victimless crime' as previously found (Lai and Zaichkowsky, 2009; Thomas, 2007).

A valuable academic source for comprehending the impact of IPR infringement resulted in Hopkins et al.,'s (2003) *Counterfeiting Exposed*, where the authors introduced a 'harm matrix' encompassing four varying levels of deception and quality, ranging from high deception/high quality (such as grey market goods) to low deception/low quality (such as non-deceptive Louis Vuitton bags). The harm matrix has been employed by many authors seeking to understand the notion of harm associated with the consumption of counterfeit goods (Wall and Large, 2010; Anti-Counterfeiting Strategy Newsletter, 2015; Chaudhry et al., 2017). The inclusion of the Harm Matrix in this study is proposed as a useful tool to identify different levels of fakes. Furthermore, Thomas' (2007) example in practices employed to evade detection by policing agencies, these goods once perceived as low quality/low deception can be transformed into counterfeits of low quality/high deception. This blurring of levels of harm identified in the proposed harm matrix, has not been addressed in this light previously.

Luxury Brands Anti-Counterfeiting Approach

“The plagiarism and copyright trials of the twenty-first century are what the obscenity trials were to the twentieth century...These are really the issues of our time” – Kenneth Goldsmith

Today, luxury brands have the option to perform in-house brand protection duties through the recruitment and delegation of ‘in-house’ teams, specialising in intellectual property (IP) law. Luxury groups like Richemont and LVMH have relied on the outsourcing services through the adoption of **brand protection providers**, such as Incopro, Rousse, Pointer or Yellow; all of which comprise the bulk of global brand protection providers. Incopro, considered the leading brand protection company and client-preferred firm, uses technology, combined with IP and investigation expertise, to deliver effective and targeted protection to businesses looking to protect their IP assets online using TALISMAN brand protection system. TALISMAN has been used by many global brands to track and assess infringement issues across Marketplaces, Websites, Social Media, App stores and more. London-headquartered Incopro, like many of its competitors, is a three-year-old company, which has grown and quadrupled in size and staff globally. Incopro, in its infancy stage had secured access to approximately fifty marketplaces online, to date they boast access to over 325 online Marketplaces. In 2014, Incopro’s Chief Operating Officer provided two expert reports regarding a Richemont case to emphasise the efficacy of site blocking. The evidence provided was accepted by the Court in concluding that site blocking orders directed at streaming websites “have

resulted in a decrease in the overall level of infringement in this sector in the UK” (Saunders, 2018). Yellow Brand, on the other hand, focuses on social media and contends that these channels are increasingly prevalent targets for counterfeiters, with fake goods vended on both global and local channels, specifically in BRIC territories, China and Russia, in addition to ‘high volume platforms like Facebook, Twitter and Instagram’ (Chaudhry et al., 2017: 295). ‘Yellow Brand confirmed that counterfeiters’ tactics for avoiding detection included securing content in closed groups’ (Ibid). A particular challenge cited by the London based brand protection firm included ads for counterfeits which omit the brand’s name and therefore do not appear in online searches, ‘as well as the dominance of online sales by marketplaces that source stock for many web stores and carry out’ B2B and C2C online marketplaces (Ibid).

It is imperative to cultivate good relationships as brand protection providers with local and international enforcement bodies, i.e. Interpol, Scotland Yard, Customs and Border Police, as well as legislative and government agencies, i.e. Trading Standards, Global Anti-Counterfeiting Group, International Trademark Association. As rights holders, it is necessary to understand the functions of specific brand protection providers in order to ascertain the best provider for a particular industry. For example, cigarettes and pharmaceutical (pharma) brands rely on providers who specialise in serialisation and holograms, as well as open standards to ensure interoperability between systems. Other brand protection providers will opt for alternative routes, depending on the prioritisation of their concerns. Legislation and the impact of online sales on product counterfeiting were revealed to be a factor to shape the future of the brand protection industry. For

instance, Brexit will have many implications for brands and brand protection providers. Previously, the TRIPs EU multilateral treaty, which considers IP, will have to follow revision to cater to a non-EU Britain. This will problematize efforts undertaken by brand protector's protestations that counterfeiters are becoming more innovative in their techniques to avoid detection, which any loophole within legal frameworks will incur consequent and systematic problems for brand owners. There have been calls for the establishment of a no-fake policy on e-commerce marketplaces, as counterfeiters are capitalising on existing loopholes in the 2000 Information Technology Act (*The Economic Times India*). In the wake of Brexit, more brands have registered trademarks and IP rights nationally, as previous trademarks registered within the EU would cover the trading bloc. The impact of geopolitics on intellectual property must be considered amongst policy makers.

Furthering the discussion on legislations, it is important to discuss recent attempts to bolster anti-counterfeiting activities on the Internet, which have been harshly criticised and heavily scrutinised (Chaudhry et al., 2013). The widespread public criticism was geared toward the proposed US legislations, *Stop Online Piracy Act* (SOPA) and the *Protection Intellectual Property Act* (PIPA). In 2012 worldwide protests followed the proposal of a multinational treaty developed by Japan and the United States and signed by several countries including the European Union and 22 EU member states. The proposed Anti-Counterfeiting Trade Agreement (ACTA) aimed at creating international standards for IPR enforcement via the establishment of an international framework to govern counterfeit goods and copyright infringement, which is outside operates outside of

any current legislative body, e.g. WTO, WIPO and the United Nations. Civil liberties activists viewed its ratification as an infringement on freedom of expression and privacy (Jolly, 2012). ACTA furthermore, was labelled a cultural disaster citing its benefits ‘far outweighed by the potential threats to civil liberties’ (David Martin, British MEP).

Another criticism of policy laundering addressed the furtive nature of negotiations which deliberately excluded civil society groups, developing nations and the general public from negotiations. According to Sezneva and Chauvin (2014: 149-150), ‘the institutional swelling of the IP juridical apparatus has elicited calls for its suppression, instantiated by struggles against the new enclosure, the protests that met the most recent introduction of the Anti-Counterfeiting Trade Agreement (ACTA)’.

Previously discussed, track and trace solutions such as RFID tags and recent cutting-edge technological developments have been created to authenticate products as well as tackle issues of provenance. However, it is not merely a few new technologies and its adoption through luxury brand groups and companies, but the creation of an industry dependent on monitoring and investigating the counterfeit trade’s proliferation in the global market.

Unlike theorists and scholars, this industry is more concerned with the ‘how’ than the ‘why’. The literature reviewed for this project revealed that academics have as Staake et al., (2009) posit, provided an overview of the counterfeit trade and spill over effects, identified certain aspects and features of the trade and interpretively explored questions surrounding demand side investigations directed toward consumer behaviour and motivations. However, the industry explores the methods of prevention; proactive and reactive courses of action and the development of a centralised system that offers a

paradigm shift in corporate anti-counterfeit efforts. Nonetheless, brand protection providers are in their infancy phase, with many between three and five years old. Noted prior, luxury brands relied on in-house brand protection teams poring over Excel spreadsheets. Today, a plethora of brand protection providers are available and can be outsourced to offer effective and efficient results. The benefits of outsourcing a brand protection provider allows for the intermediary firm to take on the responsibility as well as train in-house employees in the tools and skills needed to eradicate the threat product counterfeiting poses to the brand. Furthermore, luxury brands do not need to exhaust considerable time and resources in fighting counterfeiters, which is costly and counter-productive to the brand's bottom line. A brand protection provider possesses pre-established contacts within all the agencies and sectors needed to launch a coordinated attack on the counterfeiters. For instance, Incopro developed TALISMAN, which continually monitors all corners of the Internet for potential IP infringement and analyses the data in real time to ascertain where action needs to be taken. In addition to an abundance of services tailored to each client, Incopro incorporates clustering – including offline data, and finds connected accounts by sellers; identifies large scale infringers/networks operating online and offline and uncovers their business models. Incopro's approach relies on counterfeiters promoting goods through social media and using *clustering*; those accounts can be traced back to its provenance exposing all connected networks in the process. In contrast, companies such as DH Counterfeits offer a centralised database system that offers invaluable solutions in advancing the efforts of IP teams and reversing the impact of counterfeiting. The benefits of a brand protection IT system has been cited to witness a tightening in internal control, improved transparency

within organisations, more open and accessible communication channels and can quickly pass on cases to the appropriate departments to thwart counterfeiting. The development of IT systems and software is a bold step forward from the previous cease and desist, ‘whack-a-mole’ approach used in fighting product counterfeiting. Brand protection IT software, such as CaseMate, a strategic and vital tool allows for the effortless information sharing between stakeholders and powerful analysis tools, which provide insights to help teams effectively strategise. For CaseMate, a database that consists of tens of thousands of cases, is built on two interlinked sub-systems that provides simple case input, a clear overview and monitoring of all cases as well as an external registration portal which provides the possibility for external parties e.g. local IP lawyers, intelligence agencies, to report suspected counterfeits, initiate cases and upload files and images directly into the DH Anti-Counterfeit database (DHCounterfeits, 2015).

Apart from brand protection providers and in-house brand protection teams, it is essential to be acquainted with the relevant public resources on anti-counterfeiting. For example, the World Customs Organization (WCO) in 2010 introduced the Interface Public Members (IPM), an online tool serving as an interface between frontline Customs officers and the private sector (WCO, 2015). The European Observatory on Counterfeiting and Piracy, created in 2009, works together with OHIM (EU’s principal agency exclusively dealing with IP matters) through an MOU signed in April 2011. Following this, the Enforcement database (EDB), ACIST and COPIS are tools which assist enforcement authorities to uncover patterns and see how counterfeited goods are moving within the internal market. In 2015, a link between COPIS and EDB went live

providing rights holders with the possibility to send their Application for Action electronically. Interpol, the world's largest international police organisation with 190 member countries, aids through the Interpol Database on International Intellectual Property (DIIP) Crime – a database which centralises information about trafficking in illicit goods, and supports investigators with transnational cases. Under EUROPOL, the European Serious Organised Crime Threat Assessment (SOCTA) has identified commodity counterfeiting violating health, safety and food regulations and substandard goods as a new priority area in the EU policy cycle 2014-2017.

From an industry perspective, globalisation and the digital economy are steadily contributing to the increase in counterfeit trade. Consequent to the obsolete nature of fashion, fast fashion has emerged as a legitimate commercial form, one which Wall and Large (2010) contend relies on design piracy as a key stimulant to the fashion sales cycle. Moreover, the threat of mass producers claiming 'influence' or 'inspiration' has culminated in a resounding argument made for counterfeiting. Unrivalled accessibility and the digital economy along with social media have amplified the problem of counterfeiting. As Incopro stated, counterfeiters are using social media to promote their products even before they are on the digital market. An example of this occurred when Nike launched a new product to commemorate the anniversary of the *Back to the Future* film; *Complex* online magazine published the article that a factory in China is already making fake auto-lacing Nike Mags prior to the launch of the product in the USA. For brand owners, the costs of counterfeiting are multi-faceted and lead to; uncertainty in product authenticity which erodes consumer faith in the brand, a loss in sales, loss in

prestige and a decreased value of innovation (Devialet, 2018). Design patents are instrumental in protecting creations innovated and developed by legitimate brands. Growth for companies that value design is 22 percent higher than for those that do not (EUIPO, 2017).

Anti-counterfeiting solutions: A technological and managerial account

An assessment of the damages incurred to luxury brand companies results in both direct and indirect losses. The tarnishing of the brand's tangible and intangible assets affects the firm's revenue, brand dilution, loss of brand trust, damage to brand equity, image and reputation as well as the incurrence of vast resource investments with diminutive return on investment. Trust, authenticity, transparency, traceability; these are the issues of the supply chain today, and the managerial solutions presented thus far must address.

Previous literature has addressed several anti-counterfeiting strategies, which have been classified contingent upon the targeted stakeholders (Chaudhry et al., 2005; 2009b); available technological solutions, e.g. track and trace, overt and covert solutions (Chaudhry and Walsh, 1996; Wong et al., 2006; Cheung and Choi, 2011; Ting and Tsang, 2013; Li, 2013); the reference of country and culture (Bender, 2006; Clark 2006; Chaudhry, 2006; Swike et al., 2008; Stumpf and Chaudhry, 2010; Zimmerman, 2013); or the operational and strategic decisions companies employ in tackling counterfeiting (Kaikati and LaGarce, 1980; Harvey, 1987; Shultz and Saporito, 1996; Jacobs et al., 2001; Yang et al., 2004; Cooper and Eckstein, 2008).

Cesareo et al., highlight the three main periods of managerial solutions examined in literature to date; ‘the early identification period (1980-1993); the integration and elaboration period (1994-2003); and the managerial validation period (2004-2015)’ (Cesareo et al., 2017: 207). The author’s comprehensive examination of the periods provides this research with a thorough discussion of the strategies proposed as well as the progress to date with the inclusion of technological advancements designed to solve supply chain provenance issues. The following presents an elaboration on the author’s discussion of the evolution of managerial solutions to counterfeiting since the first period.

- The early identification period (1980-1993) examined potential corporate solutions to counterfeiting proposing strategic options such as *hands off, prosecution, assertion, withdrawal, warning, awareness, cooperation and action* (Kaikati and LaGarce, 1980; Harvery and Ronkanimen, 1985; Harvey, 1987 and 1988; Bush et al., 1989; Olsen and Granzin, 1993).
- The integration and elaboration period (1994-2003) saw scholars explore a collective approach to the fragmented literature expounding strategic options such as *protection, labelling methods, investigation (offline and online monitoring), legal counsel and stakeholder education* (Chaudhry and Walsh, 1996; Shultz and Saporito, 1996; Krechevsky, 2000; Jacobs et al., 2001).
- The managerial validation period (2004-2015) highlighted the managerial validation of the solutions proposed by academia with the following strategic options propounded; *technological solutions (overt, covert, track-and-trace), networking (private and public), and stakeholder cooperation (consumers, employees, supply and distribution chain, governments)* (Yang et al., 2004;

Chaudhry et al., 2005, 2009b; Berman, 2008; Yang et al., 2008; Cooper and Eckstein, 2008; Keupp et al., 2009, 2010; Li, 2013; Wilcock and Boys, 2014).

Following this comprehensive review, Cesareo and Pastore integrated the available literature and empirical evidence produced by anti-counterfeiting and brand protection managers at various luxury firms to fashion a thorough anti-counterfeiting/brand protection framework encompassing four main strategies: ‘protection, collaboration, prosecution and in-formation’ (Cesareo and Pastore, 2014; 2017). The protection strategy allows firms to defend their tangible (products) and intangible (trademarks and brands) assets through IPRs and technological solutions deploying tactics of track-and-trace technologies, overt and covert solutions (RFID, Holograms, invisible inks) as well as IP registration on a national and international scale and the depositing of trademarks at Customs. With a collaboration strategy, firms seek to acquire support in the battle against counterfeiting through several bodies: national and international governmental, judicial and political institutions; industry associations; anti-counterfeiting and IP brand protection agencies; supply and distribution chain partners (offline and online); and consumers, through targeted consumer-directed anti-counterfeiting measures (CAMs, proposed by Cesareo and Stottinger, 2015). As the name of the strategy implies, a targeted collaborative effort with victims and enforcers alike through the adherence of annual programmes and continuous contact; participation and lobbying activities; optimization of costs available to fight fakes, online monitoring, illegal website blocking through ISPs, monitoring supply and distribution channels to avoid infiltration of counterfeits as well as an anti-counterfeiting support centre, emails and 10800 hotline for

consumers to report fakes. The third strategy, prosecution strategy, enables firms to take legal and administrative action to defend their IPRs against counterfeiters and infringers as well as ISPs. The tactics employed with this particular strategy range from in-house and external investigations, raids and seizures, destruction of fake goods, credible reports, legal enforcement and action (civil and criminal convictions), due compensation and administrative penalties or sanctions. The in-forma-tion strategy is two-fold, allowing companies to escalate awareness regarding counterfeiting and its negative effects on countries, economies, firms and consumers as well as educating and informing internal stakeholders and customs officers on approaches against counterfeiting. Tactically, this strategy will incorporate in-forma-tion programmes on authentic product specificities, awareness and marketing campaigns, clauses and agreements for suppliers to facilitate the reporting of fakes present in the legitimate supply and distribution channels and as well as educating internal stakeholders in order to gain support and increase awareness. Based on the growth of counterfeits, ethnographic observation of the industry and managerial solutions currently employed, firms have adopted one or more strategies in the fight against fakes.

The authors have answered Chaudhry and Cesareo's (2017) call for further assessments of anti-counterfeiting messages by examining the current landscape of countermeasures employed by luxury firms today. Luxury companies have leveraged discrete and covert methods through the application of technological solutions, in addition to a collaborative and in-forma-tion strategy. As previously discussed, brands have begun fighting back by incorporating technology on their products to allow consumers to easily discern the real

from the fake. For instance, some firms such as Certilogo, mobiLUX and OpSec have been listed as firms which provide authentication and track-and-trace solutions (Cesareo et al., 2017: 214).

A collaborative effort with fashion and luxury goods companies have yielded anti-counterfeiting awareness campaigns, such as the 2011 Council of Fashion Designers of America (CFDA) and eBay launched the “You Can’t Fake Fashion” campaign, directed to raise awareness against counterfeit goods and pay homage to originality of design within the industry (Ibid). For this campaign, eBay and the CDFA created a collection of fifty exclusive and unique totes customised by a range of famous American designers, which were made available only on the auction platform for USD\$150. The campaign was a massive success that all bags were sold within a few hours. Another example of real-world anti-counterfeiting campaigns examined the 2012 collaborative effort between France’s Comite Colbert, French customs and the French National Anti-Counterfeiting Committee which launched a campaign featuring 10,000 posters displayed in France’s 18 airports to highlight counterfeiting and its negative consequences; from jail time, criminal records to substantially high fines, as previously mentioned (Ibid, Thomas, 2007).

However, as the authors contend, there is presently no study which examines the effectiveness of these campaigns in altering consumer perceptions and attitudes (Ibid). Furthermore, despite the increase in fakes available both online and offline in the UK, as well as the damage administered via product counterfeiting to luxury heritage brand Burberry among other British brands, the UK has failed to address the serious threat to industry via consumer awareness campaigns. Therefore, this study recommends a

collaborative and proactive approach through the British Fashion Council, anti-counterfeiting entities (ACG, IACC) and British designers, to highlight the seriousness of counterfeited luxury goods. The benefit of such an approach will not only highlight the seriousness of counterfeiting, but can potentially allow for a substantial audience reach via social media. Although the researcher acknowledges that educating consumers is a problematic approach on its own, a strategic approach through the collaboration of resistors, enforcers and industry, as illustrated in the examples, can prove beneficial to mitigating the threat of product counterfeiting in the UK. To date, the studies available have addressed this issue from a managerial perspective (Stumpf et al., 2011; Sonmez et al., 2013). Furthermore, scholars beckon researchers for investigations into recently launched anti-counterfeiting campaigns in the media, e.g. Interpol's "Turn Back Crime" campaign to ascertain whether these the 'linkages with organised crime will resonate with consumers and limit their future consumption' of counterfeits, as well as the 'attitude-behaviour' issue (Chaudhry and Cesareo, 2017: 18). According to the authors, future research needs to transcend measuring consumer attitudes and intentions, and need to address anti-counterfeiting measures currently developed and implemented to curtail the problem (Ibid).

In contributing to the existing literature on managerial solutions, the research seeks to explore the feasibility of technological solutions such as track-and-trace technologies and overt/covert solutions. In doing so, the research responds to calls for a thorough examination of managerial solutions in the digital sphere, which currently represents a 'strong limitation of current literature and an opportunity for future scholars' (Cesareo et

al., 2017: 216). According to a former legal counsel for the luxury sector, track-and-trace solutions such as RFID tags and Blockchain technology are the next generation of barcodes. More retail tech start-ups are employing the use of new technology to provide track and trace solutions for brands. RFID tags are low-cost pervasive devices, which provide identification of goods. In supply chain management RFID allows for tracking of a product in several stages and locations. By locating an RFID-tag with specific product and reference information on a product, one aims to verify the authenticity of the product. Each tag contains a unique ID that allows consumers to scan and authenticate their goods via their smartphones or on the fashion brand's websites. The implementation of RFID tags not only allows for greater transparency within firms but also fosters a more inclusive and interactive relationship with consumers, which echoes the luxury brand ethos for exclusivity. RFID tags have already gained momentum within the luxury sector with brands like Salvatore Ferragamo, Moncler and Vivienne Westwood implementing the use of RFID tags in their products. A quick scan at the 2018 Retail Business Tech Expo will find a host of companies specialising in developing RFID tags and systems as the future of transparency and traceability for brands.

Blockchain has been described by the OECD (Organisation for Economic Co-operation and Development) as a “database that allows the transfer of value within computer networks” (2016: 107). Blockchain is interesting for many reasons, serial numbers, QR code, UPC code, and barcode systems are all easily cloned and copied. Low security identity chips are unequipped to support supply chain automation or M2M identity verification and payments. The ease and transparency blockchain provides allows

manufacturers the ability to generate unique identifiers for products and register them within the blockchain.

Additionally, distributors and retailers would be able to validate authenticity of items when purchasing them from manufacturer or other distributors, consumers can validate authenticity of the items when purchasing them in stores or via a marketplace, and government authorities will be able to use the system to trace and locate the counterfeiters trying to breach the system. Similar to the hype surrounding RFID tags, blockchain is quickly changing the game of luxury. Shanghai based, VeChain is a blockchain company working with industry players in the automotive and luxury goods industry. The blockchain start-up positioned to fight counterfeiting, secured clients LVMH and Givenchy. They provide a platform that focuses on traceability of products, allowing consumers to validate the authenticity of their product and product provenance along all previous points of supply. Despite the nascency of block-tech, providers or the technology need to be examined through a critical lens as to political agendas and economic motivations.

Chronicled is a technology company leveraging blockchain and IoT to power smart, secure supply chain solutions. The company has developed a decentralised protocol and network for supply chains to enforce cross-organizational business rules sans revealing private data. Chronicled's biggest marketplace verticals are pharmaceuticals, commodities, precious metals and minerals (Devialet, 2018). Case studies highlighting counterfeiting see blockchain as the solution. For example, footwear according to

EUIPO's (2017) report is the most counterfeited good. In 2006, Jordan ran advertisements and created merchandise unknowingly featuring fakes. As a consequence, fake producers and manufacturers reap the promise of huge profits by circumventing manufacturing costs and original design and research, marketing, regulation and taxes. Chronicled launched its first product identity and anti-counterfeit application in the limited-edition sneaker market. Chronicled 3D printed external tags in their labs to affix to Jordans and Yeezys. They constructed an App experience for sneaker enthusiasts to claim their authentic kicks into their collection. In 2015, Chronicled authenticated more than 20,000 pairs of collectible sneakers at the SneakerCon convention and through collaborations with dozens of sneaker retailers and consignments across the USA. Apart from RFID and Blockchain technology, artificial intelligence is being used to curtail counterfeiting. For instance, Edited, a data analytics company specialising in fashion has created a software that has 'learned' to recognize apparel products in images, and natural language processing software, which can classify these products. Edited tested this on a data bank of 60 million fashion products, collected from retailers and brands in over thirty countries and in over thirty-five languages, the results presented a searchable database of organised, structured information on each of the products. However, with all the technological developments and brand protection providers, luxury brands need to understand the importance of prioritisation, according to Sony's former head of anti-counterfeiting. In determining the right IP protection, firms need to identify the product or service best fitted to their needs. Some questions brand owners might consider is why they require IP protection, what are the countries of interest and which territory is the most prone to counterfeiting your product.

Furthermore, based on Cesareo and Pastore's (2014) comprehensive brand protection/anti-counterfeiting framework, the research proposes to contribute to this discussion through the exploration of a strategic blockchain framework for the luxury industry incorporating available technologies such as IoT, Augmented Reality and Artificial Intelligence operating systems. The research acknowledges the abundance of RFID tags in the luxury industry; however, RFID follows a centralised approach which allows for errors. Therefore, the research finds and suggests that blockchain-based services can not only eliminate counterfeits on the licit supply chains but transform the entire sector and in the process solve a majority of issues and backlash continuously facing the industry. Luxury goods as Thomas (2007) finds are mostly manufactured in China, with the exception of a few still distinct brands, e.g. Hermes. Rojek (2017) posits that the 'parasitic nature of counterfeit commerce' will perceive intelligent encryption technologies as simply another obstacle for counterfeit criminals to manoeuvre.

Blockchain Technology: An anti-counterfeit solution to luxury?

In 2020, LVMH announced an expenditure of USD\$33 million to combat counterfeiting on e-commerce platforms. In 2021, Gucci (Kering) and Facebook (FB.O) filed a joint lawsuit in the State of California against an individual hawking fake Gucci goods through the social media platform. This initiative marks a monumental collaborative effort between a Big Data firm and a luxury brand to fight the proliferation of counterfeit products vended via social media platforms. In 2022, Facebook rebranded as Meta

announced plans to prioritise e-commerce and thus avows a firm position against counterfeiters. According to a Meta company spokesperson in a recent statement, “the sale of counterfeits and fraud is a problem that has always persisted with new technology.” Further, LVMH has emerged as an early adopter substantiated by multiple blockchain projects currently underway within the LVMH ecosystem with end-to-end fibre traceability projects and have identified the potential of blockchain to efficiently enhance its supply chains.

In April 2021, LVMH announced a partnership with Aura, to develop the first global luxury blockchain. Aura Blockchain highlighted the focus is “*upstream and downstream, meaning the entire life cycle of the luxury production and consumption, which is recorded for 100 years*” in a response to combating counterfeiting in grey markets. Aura blockchain is a permissioned blockchain; private, permissioned, and local blockchain, allowing for low energy consumption thereby a sustainable solution. However, permissioned, and private blockchains have been criticised for impeding circularity through restricted access to certain stakeholders (Heim and Hopper, 2021).

Interviewer: “One of the concerns about blockchain is the need for an opaque and complex supply chain to enter data reliably at each stage, how is Aura tackling that issue?”

Aura: “It’s important that before exploring an upstream traceability use case that first a brand must establish a close partnership with supply chain partners and without having a

track and trace process in place between the brands and suppliers and manufacturers, a brand risks putting sub-optimal information on the blockchain – once the track and trace process is established you can use smart contracts on the Aura blockchain.”

In developing the Aura Blockchain Consortium, LVMH has partnered with Prada and Cartier, part of the Richemont group. This comes following LVMH teaming up with Microsoft and Blockchain infrastructure builder ConsenSys, to integrate the technology in verifying and authenticating luxury goods (CoinTelegraph). This shift from competition to collaboration is key in the electronic integration of the blockchain ecosystem. Arianee, a leading NFT platform for luxury and fashion industries, of which Richemont, Breitling, Ba&sh and Thierry Mugler are members, developed a blockchain for brands to authenticate their products digitally. Each luxury item has a digital certificate with encrypted records which capture the product's details such as acquisition dates, insurance, materials. The platform recently announced that Vacheron Constantin will be delivering all its watches with the start-up's blockchain-based certificates by 2021. With this added security feature, price points on watches and other commodities leveraging block-tech might see an increase in price, although this statistic is still not proven owed to current global supply chain disruptions, pre and post pandemic market fluctuations and shifting consumer behaviours; which problematise gauging commodity price increase consequent to block-tech.

Lukso, a blockchain multiverse platform has emerged as significant within the blockchain ecosystem in relation to luxury and high fashion goods. Another example is IBM's Trust

Chain Initiative partnered with Helzberg Diamond and Richline Group which involves a blockchain solution to prove an indisputable chain of custody from the mines all the way to the retailers. This level of transparency provided by blockchain tech enables jewellers to certify that diamonds are ethically sourced.

CHAPTER THREE

KEY QUESTIONS IN LUXURY: *Value, Originality and the treatment of Trust*

Lust for Luxury

“Couture is the most sustainable way of consuming” - Demna Gvasalia, Creative Director of Balenciaga.

In 2012, Hermes received a US\$100 million repair fine from Internet sites which vended counterfeit products from the luxury leather goods and clothing brand (Le Parisien, 2012; Le Roux et al., 2015). The financial impact to rights and brand holders is difficult to truly calculate, however statistics point in the direction of a revenue loss of ‘at least one tenth of potential turnover’ (Rojek: 2017: 32). Aside from the issue of revenue loss sustained by luxury brands, they experience additional challenges from the underground economy. Counterfeits are false representations of the brand and as such the quality and experiential effects often associated with the genuine goods are not transferred or obtained from the consumption of the fakes. This loss can result in a diminished goodwill to authentic luxury brands. For a luxury brand such as Louis Vuitton or Gucci, it takes a considerable amount of time, years, financial and creative resources to establish their brand among the masses. Furthermore, this dilution of the brand’s prestige via counterfeiting can potentially incur reputational damage to the brand compromising trust and preference for the targeted brand.

From a legal standpoint, a brand is considered as a ‘set of distinctive signs that represent property’ (Le Roux et al, 2016: 350). Luxury brands register their trademark, which is then recognized as the brand’s image. Le Roux et al., argues that the legal approach to this notion of branding is ‘restrictive and limited to issues of intellectual property, the definition of signs of identification, and protection’ (2016: 350).

Previous research on the counterfeit trade with a focus on luxury goods are oriented toward consumer motivations, attitudes and behaviour, (Hoe at al., 2003; Le Roux et al, 2016; Agarwal and Panwar , 2016; Wilcox et al., 2009; Wall and Large, 2010) and thus a focus on the demand side investigations tend to neglect the supply side aspects or briefly refer. Aside from the deceptive and non-deceptive luxury brand counterfeits flooding the market, luxury brands also face threats from high street shops like Zara and Primark, who offer the copycat or imitation products of the brands jeopardising the efforts by R&D teams to innovate new styles. Studies discussing design piracy and imitations affecting luxury brands is a separate topic and one which requires its own study previously addressed by Vogel et al., (2015). However, a brief overview of the literature exploring this problem is limited and suggests a gap that needs filling to better inform consumers and the public of this threat.

Intellectual property rights lawyer, Heather McDonald, confesses, “Advertising is working. You’ll never see something counterfeited of a brand you’ve never heard of” (Thomas, 2007: 277). From a marketing perspective, the case of the ‘IT’ bag plays a crucial role in interpreting consumer demand. Like luxury brands, the handbag tells a

story about the wearer: their aspirations and desired identity. Historically, the handbag is a relatively recent product offering which came to prominence around the 1990s as “entrance products” (Thomas, 2007: 167). Today, handbags are seasonal with the introduction of the ‘IT’ bag. Unlike luxury clothing, handbags provide the wearer with a visible demonstration of status. Consequently, luxury brands allot more floor space to handbags. Thomas asserted (2007: 168) “handbags are the engine that drives luxury brands today”. This is evidenced through a proliferation of designer handbags on the market. According to Miuccia Prada, “with the bag...there are no leftovers because there are no sizes, unlike shoes or clothes...there is a kind of obsession with bags” (Ibid). This quote surmises the success of handbags on the luxury market. Moreover, any individual, regardless of their pecuniary strength, can purchase handbags. As Karl Lagerfeld once proclaimed, “everyone can afford a luxury handbag” (Ibid). According to an annual consumer survey, it was found that each year consumers shopped two new handbags from Coach in 2000, further citing that by 2004 that number doubled to four handbags consumed yearly (Ibid). In Tokyo’s Louis Vuitton global store, 40 percent of all sales were reportedly handbags. This shift to a marketing focus on handbags was carefully and strategically contrived by luxury brands even before the 1990s. Interestingly, the handbag has been linked to the first wave of feminism as a “sign of a new independence that of coming and going at will, of being able to leave home without answering to anyone” (Thomas, 2007: 186). By 1937, handbags had become a critical part of the fashion industry, as Diana Vreeland accounts upon her early years at *Harper’s Bazaar*. Today, if you asked shoppers to identify iconic products offered by luxury brands, most of them may identify luxury handbags versus luxury apparel. So pivotal is the handbag

interrelated with the success of the luxury brand that Kering attributed a decline in profits at Yves Saint Laurent in 2005 to the fact that YSL had not produced an “IT” bag in a couple of seasons (Thomas, 2007: 193). However, this research does not extend to produce a prolonged discussion on handbags, only to reinforce the role marketers and brand owners have played in facilitating this demand, which inadvertently created a demand for fake luxury handbags.

Fashion brand Diesel participated in a pop-up on Canal St. in February 2018 called “Deisel”. This represented the world’s first authentic knock-off store. Many passers-by stopped to inspect the goods for sale; most considered the position of the store as indicative of a store selling fake Diesel goods and as a result many continued on without any purchase. However, for the few who did ascertain that the goods were indeed top quality and purchased the apparently fake goods were pleasantly shocked to discover that the pieces were, in fact one-of-a-kind, specially made by Diesel design team and “very likely to become collector’s items” (Nudd, Adweek 2018). These findings raise interesting questions of views of originality, authenticity and trust as discussed by Rojek (2017). On the other side of the Veblen goods counterfeiting argument is that the production of such goods can increase profitability for the brand (Wu and Chiu, 2014) as well as foster learning effects among illicit companies. The latter consideration will be discussed with respect to issues emanating from supply chain provenance (Die Zeit, 2006).

The responsibility in tackling counterfeiting rests with the legal departments within luxury firms, to combat the crimes of intellectual property theft. For instance, Louis Vuitton, one of the world's most copied brands, retains forty lawyers in house and two hundred and fifty outside private investigators, and incurs approximately US\$18.1 million annually in the fight against counterfeiters, with these figures rising per annum. For example, Louis Vuitton, in 2004 conducted twenty raids per day worldwide, placing around one thousand counterfeiters behind bars. Firms that are active in raids and seizures of their counterfeited brands, and pursue legal action undeniably see a drop in their brand's counterfeits on the market (Thomas, 2007: 277). However, without consistent monitoring, the fake goods will proliferate the market. To this end, Wall and Large (2010: 1113) posit that a case in support of the public policing of counterfeit luxury goods hones in on the economic losses faced by brand owners, however, anti-counterfeiting public agencies stress that brand owners are unwilling to comply, if at all, in the identification of counterfeit luxury which have been seized and carry their brand. Why would luxury brands spend considerable financial and human resources to develop anti-counterfeiting measures to protect their brand but yet are reluctant to comply with public agencies in validating whether the seized articles are indeed genuine or counterfeit. A harmonised and concerted approach is requisite in clamping down on the counterfeit trade of luxury goods, among the affected public and private sectors.

Furthering the issue of declined consumer confidence in luxury brands, the negative and harmful ramifications brands face was previously addressed, while others include the reduction of the perceived exclusiveness of luxury goods. An example of this is seen in

the upsurge of Goyard faux leather bags currently available. Goyard, the 165-year-old Parisian connoisseur luxury brand, which prides itself in pedigree caters to an exclusive clientele has emerged as the new 'IT' bag to counterfeit. Connoisseur brands operate on the premise of exclusivity, limited promotion and the word-of-mouth factor, which allows the brand to cater to a select group of clients (Lea-Greenwood, 2013). Having retained exclusive distribution in the US through luxury department stores, Bergdorf Goodman and Barneys New York, the recent popularisation of the brand speaks to shoppers looking to get in on the latest trend in luxury bags counterfeiting. The brand, whose clientele include those with the financial disposition and fashion capital - has noticeably suffered a blow to their exclusive reputation (Wall and Large, 2010) as a consequence of the proliferation of fake Goyards popping up in the USA and Europe. Moreover, in 2016, popular musician and producer, DJ Khaled was photographed wearing a counterfeit Goyard bomber jacket. Contiguously, fans took to Twitter to verify the garment's authenticity. Goyard, known for its luggage and leather goods, responded to questions from users querying whether the brand had moved to apparel production or whether it was a fake or an exclusive product made for DJ Khaled. The brand quickly acted in calling DJ Khaled out on the social media platform for wearing a fake. However, in the wake of this finding, it is important to note that it is unclear whether DJ Khaled knowingly purchased a counterfeit or whether he was 'hoodwinked'.

Wall and Large's (2010) study supports the argument built around a Veblenian thesis that there exists an aspirational hierarchy of brand consumption. To this end, they contend that trend setters, those with the pecuniary means to consume conspicuously, play a

significant role in motivating the *cognoscenti* and *the crowd* in consuming for various means such as status consumption, aspirational consumption (those who consume to place themselves at the top of “the crowd” and consumption to conform (consume specifically to conform to fashion norms). The structural inequalities presented in this hierarchy mimic Georg Simmel’s theory of emulation posits that fashions tend to ‘trickle down’ resultant in popularisation and dissemination through the masses. Furthermore, this flow of fashion dictates that once the fashions have been popularised, the trend setters and influencers discard the item, creating a fashion cycle that replaces the old trend with a new trend, which will inevitably trickle down. In a late modern context, celebrities operate as major trend setters of fashion. Today, the celebrity plays a critical role in the popularisation of trends and fashions. Therefore, it can be proposed that a celebrity such as DJ Khaled, an avid supporter of luxury designer labels with over four million Twitter followers, can indirectly popularise and validate the consumption of faux luxe goods. Further investigations need to be conducted to determine whether the sartorial decisions to openly wear counterfeit fashions by trend setters can ensue in the ‘bandwagon effect’ (Liebenstein, 1950) adopted by the *cognoscenti* and the crowd as suggested by Wall and Large (2010). This assumption demerits Wall and Large’s (2010:1103) claim that trend setters, who comprise “the main market for luxury fashion good...will *only* buy authentic luxury goods”, as well as the lack of consideration for the Hybrid consumer segment (Cesareo and Pastore, 2014). Moreover, this finding reiterates the normalisation and the social acceptance of counterfeits which will undoubtedly prove hazardous to authentic luxury brands and rights holders alike (Rojek, 2017; Chaudhry et al., 2017).

The physical and secondary market, where hotspots like Canal Street (NYC), Santee Alley (Los Angeles), Bury New Road, Petaling Street (Kuala Lumpur), are known to investigators and brands alike, who expend considerable resources in discovering new hotspots for faux amis. However, the shift to e-commerce makes the Internet an opportunistic hub for counterfeiters to sell their goods, minimising the risk of prosecution. Online sales of authorised and authentic luxury brands are soaring with 24 percent year over year recorded, translating into US\$28 billion in sales and a 9 percent market share. Considering this, sizable luxury e-commerce startups have emerged, Net-a-Porter (backed by Richemont), Farfetch (backed by Chanel), Moda Operandi (backed by LVMH) and LYST are among the plethora of available shopping sites. A quick financial overview of the sites illustrate net sales in the region of hundreds of millions in revenue. Luxury brands are making the move online, with houses like Prada declaring its goal to make 5 percent of its 2017 sales from e-commerce (CBInsights, 2018). Furthering this is a growth in re-commerce, with the rise of the conscious consumer. A shift toward circularity within the industry is evident with preloved and vintage market demand through start-ups like Vestiaire Collective, ByRotation and DePop. Vestiaire Collection recently launched an IPO, proving the viability of resale and rental markets for luxury and fashion collectibles.

However, this shift to digital increases higher risk of fraud and counterfeiting, with e-commerce becoming a major enabler for the distribution and sale of counterfeit and pirated goods. E-commerce marketplaces Alibaba, EBay, Amazon and Facebook

marketplace are havens for fake luxury goods online. With the proliferation of luxury counterfeits for sale online, luxury brands must depend on brand protection agencies and software to investigate marketplaces to mitigate the presence of fakes on their websites.

In 2016, French fashion house, Louis Vuitton under umbrella company LVMH, filed a legal suit against Beijing's Haidian District Court regarding the sale of counterfeit goods on TaoBao Alibaba's e-commerce marketplace. This is not the first maison de luxe to take China's biggest e-commerce group Alibaba to court. In 2015, Kering, French fashion conglomerate, sued the website for the alleged sales of replica luxury goods from the group's stable of brands. The suit against Jack Ma's Alibaba resulted from the sales of fake Saint Laurent, Balenciaga and Gucci goods. The aforementioned examples illustrate the burgeoning increase that online fashion counterfeiting is operating today (Casabona, 2006) and the luxury brand's efforts to combat the counterfeit trade. Belstaff received US\$42 million in damages from 676 websites for the illicit sale of counterfeit goods bearing the brand's trademarks. Another suit led by Richemont, the conglomerate that manages and owns Cartier and Montblanc won a landmark case against five British internet service providers, including Sky and BT, requiring the sites to prevent access to websites selling counterfeits on the Internet (Pithers, Vogue 2017). Despite the abundance of counterfeit goods finding its way onto online marketplaces, Alibaba has taken a transparent and proactive step in combating IP infringers through coordinated efforts with brands to eradicate the presence of counterfeit sellers on the e-commerce marketplace platforms. In January 2017 Alibaba teamed up with affected brands such as Samsung and Louis Vuitton establishing the formation and launch of the Alibaba Anti-

Counterfeiting Alliance (AACA). The alliance consists of over 105 brands, with newcomers including Honda, Bose and Canada Goose, among others. Furthermore, other auction sites heavily scrutinised for aiding and abetting counterfeiting such as eBay launched the VeRO programme to show its commitment to eradicating counterfeits on the marketplace (Cesareo et al., 2017: 214). In 2020, Chanel, Gant and Lacoste departed a European Commission aimed at facilitating cooperating between brands and sites such as eBay, Alibaba and Facebook Marketplace, stating it was ineffective (Nasdaq, 2022).

As this study has been ongoing, the most recent reports estimate an increase in global trade in counterfeit products at \$464 billion in 2019 (OECD, 2019). Consequent to the COVID-19 global pandemic a major boom in e-commerce between 2020/21 has propelled a growth in the supply of counterfeit luxury goods, particularly on Meta platforms; Facebook and Instagram (Ghost Data 2020 Report, Reuters). This massive surge in fraud during the pandemic has outpaced regulatory measures.

A string of aggressive countermeasure strategies and cutting-edge technological advancements are being developed to fight counterfeiting. New insights into anti-counterfeiting strategies showed that retail tech start-ups are investing in the development of new technologies to proactively counter the faux luxe goods. These technologies are in response to the prolific role technologies are playing to better assist counterfeiters in achieving top quality fakes, e.g. 3D printing (EUIPO, 2017). Anti-counterfeiting measures available to authenticate real versus fake goods consist of technological solutions, e.g. holograms, invisible inks, RFID tagging and special packaging; as well as

strategic and operational decisions implemented by brand owners. Italian luxury brand, Salvatore Ferragamo has adopted the use of passive radio-frequency identification (RFID) tags inserted in the left sole of each pair of shoes it produces as does Moncler and Vivienne Westwood, are also early adopters of this technology trend (Pithers, Vogue 2017). Tech Start-ups have emerged with new solutions to combat counterfeiting such as secured tags that can be read using a smartphone, AI-powered solutions to identify luxury bags, and blockchain-based digital identification, e.g. RealChain, are available solutions to better protect luxury brands and their goods (CBinsights, 2018: 24). For instance, Arylla, a 2018 LVMH Innovation Awards nominee produces an invisible ink that can be used by customers and retailers of luxury goods to verify product authenticity (LVMH, 2018). These developments and endorsements indicate a proactive and reactive approach implemented by the luxury goods industry in an aggressive fight against counterfeiting. Other brands, however, are less discreet as seen in Alexander Wang's S/S2017 show after party where he spray-painted 4x4s with the slogan "Stop leaking my shit". Prior to this, an initial endeavour by a fashion designer to raise awareness on the hazards of counterfeiting was seen in Sean 'Diddy' Combs 'Don't buy a Lie' campaign to educate shoppers of the underground economy tied to counterfeit consumption (Kim and Karpova, 2010). Apart from the brand's role in attempts to curtail the illicit trade; it was found that a multitude of "How to spot a Fake" websites relating to a Goyard case study, previously mentioned, were discovered online. The emergence of websites devoted to informing consumers meticulously on those 'clues and cues' to differentiate a fake from the 'real' has increased over the years. This observation indicates an increase in the online distribution and consumption of deceptive faux luxe goods. To this end, the

research will address Kim and Karpova (2010) call for investigations of online purchases related to counterfeit articles.

In response to social media's increasing role in facilitating the counterfeit trade (Chaudhry et al., 2017; UK IPO, 2017), Instagram accounts like *Yeezybusta* and *FakeWatchBusta*, are among those negatively reacting to the proliferation of social media platforms promoting fake goods. Most recently, one of these accounts exposed rapper Busta Rhymes for sporting a fake Louis Vuitton x SUPREME hoodie. This finding is however, not a new discovery, yet it has not merited any scholarly attention as to why celebrities with the financial means to procure the authentic luxury goods, endorse fake goods. The question then follows whether celebrities are knowingly consuming counterfeits or are they hoodwinked consumers, i.e. victims of fraud (Rojek, 2017: 33). Based on findings there has been evidence to suggest the infiltration of counterfeit articles within the supply chain of luxury brands owners. Wal-Mart in 2003, a trusted and heavily trafficked store was discovered to sell counterfeit Gucci handbags and wallets as genuine articles in several of its stores in the United States (Thomas, 2007: 290). In the case of Wal-Mart, it was found to practise 'willful blindness' where store buyers fail to inquire the origin of the fake goods from the wholesaler or intermediary resulting in the sale of the fake goods posed as the real goods.

A Life of Luxury

“Quality is remembered long after price is forgotten”

– Al Pacino as Aldo Gucci

For luxury goods, its intrinsic nature and *raison d'être* is predicated on the symbolic connotations of prestige and exclusivity, an image conjured up by 'capitalism's continual supplies of knowledge and creativity' (Pang, 2008: 118). Against this milieu, contemporary capitalism fosters an 'epochal shift from tangible to intangible commodities' (Sezneva and Chauvin, 2014: 125). For instance, a Gucci bag is authentic for its trademark opposed to the physical and tactile attributes. Scholars contend that flows of messages and images are what forms the basis of production today and thereby represent the social and economic fabric of contemporary society (Castells and Cardoso, 2006; Sezneva and Chauvin, 2014). Some authors argue that capitalism today has entered its 'cognitive phase', and as Virno (1996: 189-210) argues 'extracts value from "virtuosity"'. From a political economy standpoint, it is fundamental to explore this question of value through commodity circulation and exchange (Sezneva and Chauvin, 2014: 127).

The acquisition of this type of good confers upon the wearer an image, of aspirations and dreams fulfilled. Today, aspirations are perceived through ownership and social aspirations indicate a certain lifestyle and merit those who achieve such status as 'successful'. The apparent mystical and symbolic powers associated with luxury brands

prompts questions of value. As such, it is imperative to address the fundamental relationship between luxury and value. The issue of value has been raised by many social scientists; Marx's commodity fetishism as a critique of political economy unravels the social power attached to objects and thereby unpacks the relations between producers and consumers. Although luxury brands in this light are perceived as a negative form of commodity fetishism, Marx's contribution contends that such marginalisation is created to oppress the proletariat. For counterfeiters, the demand for luxury goods addresses this social exclusion.

Following postmodernism and the later 'cultural turn' in the 1980s and 1990s, 'culture' became the primary location of 'meaning' and activity (Entwistle, 2009: 25). Ray and Sayer (1999) posit that culture is intrinsically tied to meaning and value. The research considers a proposition of value, central to an examination of luxury goods. According to Boltanski and Esquerre (2017: xiii) the treatment of value is illustrated as 'a means seized on by the actors in an exchange when they seek to criticise or justify a price'. They further confer that a change in capitalism materialises through the assemblage of spheres typically measured in isolation – particularly the heritage industry; including the luxury goods industry. Building on this, they focus on the enrichment of existing things. An economy of enrichment 'draws its substance from exploitation of the past' (Boltanski & Esquerre, 2017: xii). The author's understanding of *enrichment* of goods is reminiscent of Benjamin's (1936) notion of the 'aura' that surrounds works of art and by the same token, luxury items. The authors describe *valeur* (value) as a *dispositif* (device) of vindicating prices. For the authors, there are '**meta-prices**', which consider the

underlying ‘value’ as determined through arbitration. According to Boltanski’s earlier work, the idea of ‘test’ (epreuve) illustrates an essential part – for example where the value ascribed to an object is ‘tested’ in a sale or auction, and the ‘reserve price’ correlates to a meta-price.

For Boltanski in an enriched economy, objects are ‘enriched’ due to its history, particularly owed to the associations with narratives that forefront their established character as well as their ingrained national roots and as such occupies a *collective form*. This notion of an enriched economy carries weight when one considers Leonardo da Vinci’s *Salvator Mundi*, which in 1958 sold for GBP 45, yet today fetched a US\$450 million price tag at Christie’s New York auction house in 2017. The collective form, is seen to valorise and therefore rests on the notion that these objects or goods, are enriched in meaning from their past and heritage and then transformed into collectible items, which confer symbolic distinction.

For instance, the Diesel ‘faux’ products is an interesting case study for this argument as due to its rarity and significance can evolve from a standard form to a collective form. This fluctuation between forms is not wholly addressed or thoroughly explained by Boltanski and Esquerre (2017). However, one criteria of this economy is that it ‘capitalises on commerce in items primarily intended for the global rich’ (Ibid). In the composition of the argument of *Enrichissement*, they propose four forms of valorization or *transformations* (Claude Levi-Strauss), *standard form*, *collective form*, *active form* and *trend form* (Boltanski & Esquerre, 2016: 69). In terms of the economy of enrichment, the

collective form is specific to the luxury sector in that the valorization of a product will be built on a story – this national rootedness maintains that as a result the value will appreciate over time, as evident in the above-mentioned example.

The fourth form, and a new addition to the previous three in a reply to Fraser's critique (2017), *the trend form*, is particularly interesting as it specifically considers fashion products. The trend form occurs when value is placed on objects through the association with a narrative, mainly contemporary figures like celebrities opposed to narratives of the past, associated with the collective form. However, these forms merit little importance to this discussion unless the geographical displacement of commodities is factored. For instance, 'when the value of something initially produced and exchanged as a standard object is revalorized by reference to the collection form' (Ibid). However, Boltanski and Esquerre's (2017) revised *New Form of Capitalism*, is not without criticism. On the one hand they move away from a classical political economy's emphasis on labour and from the neoclassical attention paid to utility, instead, the authors focus on social practices that establish the value of objects discursively (Fraser, 2017: 57). However, Fraser critiques their conception of an economy of enrichment due to their establishment of capitalism and the relationship between their 'forms of valorization' and Marx's 'trinity formula' of profit, interest and rent. Fraser argues that Boltanski and Esquerre fail to incorporate a wider perspective which, she argues, should include industry and finance in addition to 'other forms of monopoly rent-seeking, such as intellectual property' (Fraser, 2017: 64). This aforementioned broader perspective would also divulge possibilities for mobilisation and social transformation; while 'exploitation through enrichment must remain a

relatively restricted, even provincial concern, expropriation through financialization is potentially of very broad interest' within the realm of the counterfeit trade (Ibid).

Furthermore, in addressing a critique on the *mise en valeur* of commodities, for Boltanski and Esquerre (2017), the various forms differ due to their relation to time and as such are thereby interrelated (Outhwaite, 2017: 663). Moreover, the authors emphasise that the enriched economy occurs organically through the development of capitalism to extricate profit from new sources. However, this economy of enrichment is volatile as it relies on the manoeuvring of economic differentials among world regions considered a form of rent-seeking which is time restrictive. Outhwaite (2017), like Fraser (2017) argues that intellectual property is not addressed and its inclusion would serve as a good example to the author's critique of capitalism. Along these lines, a deceptive counterfeit which infiltrates the licit supply chain or acquired at known counterfeit hot-spots, has no place in Boltanski and Esquerre's (2017) *mise en valeur*. Their discount of addressing IP from this perspective, except in the context of cultural producers, discredits their new spirit of capitalism and is at odds with the 'struggle against commodification' (Ibid: 492).

Outhwaite (2017: 665) introduces a notion that does stem off of this critique and considers an alternate conception of this shift toward an economy 'based less on ownership of commodities and more on sharing or, in the more capitalist version, leasing'. This notion of leasing is in line with contemporary models of knowledge sharing through crowdsourcing and an open-source model as employed by Tesla. Furthermore, this shift of economy as highlighted by Outhwaite (2017) exposes questions of copyright versus copyleft. The model of enrichment, therefore, serves as an apt starting point to

understand this shift and offers a structured basis to establish counterfeits' place within the forms of valorisation in an enriched economy.

Against this backdrop, objects such as counterfeit luxury products are acquired due to their connotative value; a faux luxury designer handbag is less acquired for its utility rather than the mark of distinction and status it infers. Wilcox et al (2009) found consumers' motivations toward the consumption of counterfeit luxury brands were attributed to the social motivations underlying their luxury brand preferences. Similarly, Wall and Large (2010) findings correlated with Barnett (2005) and Raustiala and Sprigman (2006) thesis (post Liebenstein) that consumer's primary motivation for the consumption of luxury brands is for social positioning. Furthermore, Wall and Large (2010) found that social acceptance of the consumption of fake products was improving. This demand for luxury brands fosters the demand for counterfeit luxury which considers social goals to underpin this consumer behaviour (Ang et al., 2001; Nia and Zaichkowsky, 2000; Wilcox et al., 2009; Zaichkowsky, 2006). Although Wall and Large (2010) findings illustrate a third of their sample as legitimately deceived by the counterfeits, while for the most part counterfeits consumed were done so knowingly; it is this question of improved quality and increased deception especially with online transactions that this research seeks to further explore.

Questions of Originality

*“The first stage of the economy’s domination of social life brought about an evident degradation of being into **having** – human fulfilment was no longer equated with what one was, but with what one possessed. The present stage, in which social life has become completely dominated by the accumulated productions of the economy, is bringing about a general shift from **having** to **appearing** all “having” must now derive its immediate prestige and its ultimate purpose from appearances. At the same time all individual reality has become social, in the sense that it is shaped by social forces and is directly dependent on them. Individual reality is allowed to appear only if it is not actually **real**” (Debord, 10).*

Pablo Picasso once remarked that ‘Art is theft’. Many art historians and scholars will agree with this statement. Questions of originality have plagued us in the twenty-first century, and as Goldsmith said, ‘these are really the issues of our time’ (Shore, 2017). When we think of the film *Star Wars*, we instantly consider it to be truly authentic and possibly the reason why it’s garnered the cult following and even over forty years later it continues to top box office records and ignite the ‘force’ in all of us. However, Thompson (2017) breaks it down as a reconstruction reliant on borrowing existing stories and media texts to create an ‘original’ film. For *Star Wars*, George Lucas initially sought the rights to adapt *Flash Gordon*, however upon failing to acquire said rights wrote a script incorporating elements of *Flash Gordon*, *The Hidden Fortress*, a 1958 Japanese adventure saga by Akira Kurosawa and *The New Gods* (the story of a hero who channels

a power called ‘the source’ and a villain Darkseid, cloaked in black armour who is later revealed as the hero’s father (Thomson, 2017: 104). Thompson (2017) makes the case that we are both neophilic and neophobic; meaning that as much as we want new and original, we also crave the familiar. This idea stems from the adoption of fluency studies and the MAYA theory (Most Advanced Yet Acceptable) where a consumer is influenced in one part to the attraction to the new yet resists the unfamiliar culminating in a constant struggle between the two with the goal to produce a ‘familiar surprise’ (Thomas, 2017: 56). William Shakespeare understood this, as did many playwrights of sixteenth century England. The most romantic play ever written *Romeo and Juliet*, is but a reinterpretation of Arthur Brooke’s (1562) Italian verse *The Tragical History of Romeus and Juliet* – yet it is the Bard’s famous retelling of this tale that has garnered worldwide attention and cult value. As Shore eloquently posits, ‘creativity fed on copying’ (Shore, 2017: 41). There are artists whose claim to fame is the copying and reproduction of another artist’s work. A famous example, Elaine Sturtevant, made a name for herself by copying the famous works of Andy Warhol, Roy Lichtenstein, and Jasper Johns, among others. Sturtevant considered her ‘repetitions’ as original works of art. In fact, Warhol when questioned on his artistic style for his famous Campbell’s soup cans (also copied from the real soup cans) remarked, ‘I don’t know. Ask Elaine’ (Shore, 2017: 15). Furthermore, Sturtevant’s repetition of Lichtenstein’s *Crying Girl* sold for US\$710,500 in 2011 while the original sold for US\$78,400 in an auction just four-year prior (Ibid). The example shown is in keeping with the questions surrounding provenance as seen with the Knoedler fakes. Furthermore, it provokes questions of originality, why is the Copy considered more valuable than the original itself, if at all?

Boltanski and Chiapello (2005) confer a means of understanding what demarcates authenticity and originality through a discussion on codification. In the quest for authenticity, the authors confer what determines a luxury brand or in their example a 'café', is a truly authentic character one must assess its value as intangible and tangible qualities follows a process of coding. For Boltanski and Chiapello (2005) this set of codes allows for greater flexibility and a commodification of difference not capable for standardised products. For authentic goods, pleasure relies not only on its utility function but also on the disclosure of intangible qualities hinged on the relationship between artisan and buyer. Hence the authors contend the desire for authenticity is relegated to goods that are considered as original due to its rarity (outside of the commodity sphere) and general unattainable features. For instance, with luxury goods – **'time, sustained physical efforts, a personal investment in the establishment of a relationship of trust'** is prerequisite to be regarded as authentic and original. However, the commodification of these goods ensues in the need for them to be reproduced and copied and thus contradicts notions of originality and authenticity. Along this vein, commodification generates new forms of anxiety regarding the authenticity of things which are no longer easily discerned or determined. Against this backdrop, Wall and Large's (2010) discussion of the hyper-real element in the relationship between fakes and authentic goods, suggests that due to the demand and desire for specific counterfeit goods, the fakes can essentially become the 'real thing'. Boltanski and Chiapello (2005: 451) contend that this level of commodification transforms everything into a **spectacle** or performance and thereby denounces reality as a mere illusion where the spectacle is

considered the ‘qua ultimate commodity form’. It can therefore be surmised that the counterfeit can potentially become the real thing due to the demand for that good as consumers will hunt out the best fakes for their price advantage and perceived top quality. This finding stimulates Rojek’s (2017) claim of the occurrence of normalisation and a social acceptance by consumers to purchase counterfeit goods. However, consumers are most likely unaware of the pernicious attributes of the counterfeit industry, which fosters modern slavery, child labour exploitation, narcotics, and human trafficking, as well as a source of terrorism funding.

Treatment of Trust

There is a scene in the Disney film, *Aladdin*, where Aladdin presented as a Prince on a magic carpet reaches out his hand to Princess Jasmine asking her, “*do you trust me?*” Princess Jasmine, though reluctant at first decides to ‘trust’ him to jump on a magic carpet to see a Whole New World. Did Disney presage the worth of trust for the interconnected world? Politicians play a perpetual game of asking constituents to ‘trust’ them to be accountable. From Major to Merkel, trust is integral to successful management of efficient systems and states.

Fukuyama argued that trust is culturally determined as communities rely on mutual trust in accordance with hierarchies to progress. For the modern economy, the level or degree of trust enables a company to move from large hierarchies to flexible networks of smaller firms. Fukuyama (1995) identified Japan as an example of a high-trust society attributed

to the treatment of Japan as a group-oriented society with the *keiretsu* (group companies) as a real example of trust and sociability. Fukuyama (1995) offers the Toyota lean manufacturing system as a successful example of the ‘systemization of a communally organised workplace’.

For Fukuyama, trust was the key component in the establishment of successful modern democratic states and adversely, the lack of trust led to high levels of corruption as evidenced in Italy and China (1995, 2015). The ‘cancer of corruption’ has been labelled as a major impediment to the economic development in countries, particularly poor and developing states. Fukuyama argued corruption, primarily a characteristic of government. In this treatment, corruption trickles down from the government toward the wider populous. For Fukuyama, the creation and distribution of rents via governments was not the only contributing factor to corruption but patronage and clientelism.

Fukuyama identified Italy in 1995 and 2015 as a robust example of a low-trust society deeply embedded with clientelist practices. Within the European Union, Greece and Italy was revealed to have the largest estimated “shadow economies”, unreported economic activity to tax powers. Within low-trust societies familistic bonds and kinship values are heavily tied to trust and enable economic activity.

“Trust becomes a valuable commodity only when it exists as the by-product of a society whose members practice social virtues like honesty, reliability, and openness. Trust makes no sense unless it reflects a general condition of trustworthy behaviour; under

these conditions, it becomes the marker and facilitator of cooperation” (Fukuyana, 2015: 123).

Fukuyama propitiously argued that the quality of government was contingent on the ‘crucible of trust’, i.e., the right amount of social capital. The disconcerted view held by Fukuyama is that low-trust societies constitute a collective action problem and once on the low-level of the trust equilibrium, such as Italy, it risks a cultural embedding of social distrust. As uncovered in the research on counterfeiting activity, Italy was identified as a key port of distribution for counterfeit luxury goods with links to organised crime, in keeping with Fukuyama’s assertion of ‘shadow economies’ and low trust societies.

A collapse of trust has been sown through seeds of mistrust. A dissented, divided and dispirited Britain has since 2016 seen distrust and disillusionment as the default position. According to the 2018 Edelman Trust Barometer press release, Britons trust in government is stuck at severely low levels (36%). Nearly half of the population believes the government to be the most broken of the four main institutions citing a decline in trust. Cited barriers to trusting business include dishonesty and a lack of transparency in business dealings at forty-five percent (Edelman Trust Barometer Press Release, 2018). This era of disillusionment brought low levels of trust, amidst rising fears of fake news (Edelman, 2018), a rise of the misinformation industry, scientific denialism, and a prolific increase in counterfeit commerce.

Trust can be perceived as a most valuable and powerful commodity in the current political climate. Consumer behaviour research in the field of product counterfeiting of luxury goods have found a loss of trust in the brand as a result of the illicit trade. Counterfeit goods infiltrating the supply chain as well as loss of brand equity are major factors disrupting the luxury sector. Former head of Anti-Counterfeiting for Sony remarked that while on a business trip with colleagues from China, he recalled they purchased toiletries such as toothpaste and bath creams as well as food items from stores in Hong Kong. Finding this most unusual, he queried whether they could not get the same items in Mainland China. They responded that they did not trust the goods sold in China and could not verify the quality or whether it was a genuine product from the advertised brand.

The world demands new models of trust. This collapse of trust is a central issue in the discussion of product counterfeiting. For luxury brand owners, a proliferation of product counterfeits on the market both deceptive and non-deceptive diminishes brand goodwill which can lead to a loss of trust. Late modern society sees politicians and corporations in a perpetual state of securing, maintaining and regaining trust, or more recent, failing to acquire trust. For luxury brands like Chanel, Louis Vuitton, Gucci, Prada, they build their brand equity over time through brand storytelling and exclusivity indicated via high prices. This level of trust gained by consumers equates in the success of the brand among a certain group or clientele. OECD and EUIPO concurred that the global trade in fake goods was worth nearly a trillion dollars a year. OECD Deputy Secretary-General Doug Frantz said, “the findings of this report contradict the image that counterfeiters only hurt

big companies and luxury goods manufacturers. They take advantage of our **trust** in trademarks and brand names to undermine economies and endanger lives' (OECD, 2016).

Relations of trust in market relations fosters the exchange of goods and services which are difficult to lay out in a reasonably comprehensive contract (Boltanski & Esquerre, 2018: 130). Berg et al., (2019) argue trust can be viewed as a coordinating factor within organisations. According to Sundararajan (2016) trust is a 'willingness to commit to a collaborative effort before you know how the other person will behave'. Many authors ponder on trust as an absence of opportunism (Williamson, 1993) which view individuals as self-interested and opportunistic. Furthering questions of trust can lead into various tangents, however with particular attention to the luxury sector, block-tech and track and trace technologies have been cited to quell current issues of supply-chain provenance. Blockchain technology enables high-trust relations within organizations through disintermediation and decentralised trust.

Supply-chain product/material provenance, within the counterfeit trade as well as its infiltration into the legitimate supply chain is often problematic for the luxury sector as well as consumers. The first change in the accounting system for five hundred years since the Medici's, block-tech enables new modes of organization and creates accountability. Recent configurations have harnessed the technical convergence capabilities of Internet of Things (IoT) and blockchain technologies to guarantee provenance even in complex supply chains (Armstrong, 2016). Internet-aware sensors capture finely granular real-time

data about product and environment characteristics as well as location and timestamps throughout the supply chain. Hence, the lack of a digital footprint may no longer be an issue. Distributed databases using blockchain technologies promise to offer highly secure and immutable access to supply chain data. Blockchain databases are decentralised, so that provenance can be evaluated even when no one party can claim ownership over all supply-chain data' (Kim & Laskowski, 2018: 18). Within a data-driven society, blockchain's main premise is to eliminate the need for mechanisms of trust and transparency (Olmes et al., 2017) through a chronological, immutable digital record. The implementation of the technology fosters decentralisation and therefore opens new discussions of market governance structures which are both socially constructed and technologically determinant (Gruin, 2021). According to Gruin (2021: 584) the occurrence of the technology radicalises the Hayekian proposal to end the nation-state monopoly on the production and distribution of money (Ametrano, 2016; Hayek, 1990). Like Gruin, a range of academic literature has been devoted to unpacking the socio-economic merits and demerits of cryptocurrency and the underpinning technology.

A distributed database that maintains a continuously growing list of data records secured from tampering and revision, block-tech, consists of blocks of time-stamped data or transactions linked to a previous block (Morris, 2016; Nakamoto, 2008; Popper, 2016). Block-tech operate on the premise of transparency and as a consequence one of its earliest use cases showed provenance tracking along with multiparty aggregation and interorganizational recordkeeping.

A 2018 Global IP summit held in London proclaimed block-tech as the next big technology to be adopted by the luxury sector in curtailing the counterfeit trade. Many delegates from brand protection providers, IP lawyers and software developers have identified blockchain technology as an appropriate technology for the luxury sector in maintaining and building better relations within their microenvironment, among stakeholders and consumers as well as offering a preventative measure to counterfeit goods infiltrating the licit supply chain and its prominence on the market. Blockchain evangelicals and enthusiasts will proclaim the technology as comparable to the Internet in how it will alter the global economy. If this assumption holds true then the luxury sector, as will others, see the need to harness and develop the still-nascent technology. As Kim and Laskowski (2018) note, demonstrating authenticity of luxury goods are some ways the blockchain technology can be used to benefit the luxury industry and potentially discourage the product counterfeiting of luxury brands.

Provenance: A case for Block-Tech

*The Manhattan gallery Edward Tyler Nahem Fine Art is refusing to divulge the seller of 'Untitled (Red, Yellow, Blue, Black and White)' (1950), purported as an original Mark Rothko, which has left the **provenance** incomplete and the painting unsellable. (Cassady, TAN: 02/02/22).*

Provenance refers to the chain of custody and history of an object from its inception and traced to present day, usually through certificates of ownership and authenticity.

According to Shindell (2016), provenance is determined by physical possession (location), which differs from ownership or legal title. Within the art industry, provenance is different from legal title, and as such it is important to discuss a *gap* in provenance. Shindell (Ibid: 408) confers a gap provenance is a ‘misnomer’, which used in the context of the WWII artworks (1933-1945), considers that the artwork may have been acquired through illicit use and therefore has a questionable legal title. However, due to this dialectical relationship between provenance and legal title, *gap-free* provenance can also carry questions of legal title. Furthering this, Shindell (Ibid) finds that the art industry ‘has never systematically recorded both sides of each transfer of possession (or ownership) of artworks’. Hence, there is no way of knowing whether the given provenance is complete and accurate, even if partially valid. In addition, evidence in the art industry finds that provenance documentation can be faked or forged (Ibid).

An important tool, which the industry relies on for connoisseurship, is the catalogue raisonné. However, Shindell (Ibid) comments on three issues with the authority of the catalogue raisonné. First, the accuracy and validity of the information incorporated and provided within a catalogue raisonné may be inaccurate, as it may be received partly or wholly from third parties, and therefore sparks doubt. Second, the catalogue raisonné concentrates on physical possession, not ownership as a distinct legal concept and term (Ibid). Third, it cannot illustrate that a particular work trading in the industry is the same work to which is referred in the catalogue. Discrepancies with reliance of the catalogue raisonné are demonstrated with the case of John Myatt and his 200 fake paintings previously mentioned. John Drewe, commissioned the fakes from Myatt and proceeded

to corrupt the archives of the Tate and V&A, by inserting the forgeries into catalogues and thus creating false provenances. Advances in forensic testing are proving to be useful in tackling issues of authentication and provenance. Faking “corrupts and degrades the information we have on art history, which undermines our culture and harms us all” (Eastaugh In Adam, 2017: 126).

A critique on the value of Provenance

Despite meticulous and methodical examination to determine provenance of the *Salvator Mundi*, as undertaken by Margaret Dalivalle and Martin Kemp, suggest that the artwork is still not fully authenticated as a Leonardo Da Vinci. Despite claims to be collected by Charles 1st and 2nd in varying ledgers; the *Salvator Mundi* provenance is shrouded. The murky art world offers a suitable experiment with the implementation of block-tech to resolve chain of custody issues for future art works.

The Prado museum recently downgraded the artwork in its exhibition catalogue, for *Leonardo and the copy of the Mona Lisa*, which runs in Madrid until January 2022 (The Art Newspaper, 11.11.2021). Prado's critical response by placing the *Salvator Mundi*, in the exhibition catalogue index under “attributed works, workshop or authorised and supervised by Leonardo”, instead of paintings “by Leonardo” (Ibid). The enigma surrounding the provenance of the most expensive painting in the world is one shrouded in treachery, corruption and money-laundering (Lewis, 2019). According to Lewis (2019: 340), [Salvator Mundi] will “find itself floating forever in a Sisyphean limbo, where

efforts to climb the summit of art history and authenticate it permanently as a Leonardo are eventually, ultimately, inevitably, doomed to fail”.

“No one wants to be fooled, people are fooled by art much more than we know”, said Ann Freedman, a former Director of the renowned Knoedler Gallery in New York.

Who decides what a value a painting is worth? From a business perspective, it can be argued that scarcity and reputation will drive the price. In the early 2000s, for over a decade, 80 million dollars were exchanged at the Knoedler Gallery for deceptive counterfeit artworks, purported to have been authentic works by several Abstract Expressionist (AbEX) painters. The artworks included “unknown” paintings by Jackson Pollock, Willem de Kooning and Mark Rothko, among others. This incident rocked the art world and questions in the value of provenance were raised; does the provenance of an object mean more than the object? According to a buyer of the Knoedler fakes, “their provenance was exactly what we’d been told”, in the court testimony (Adam, 2017). The charges for the Knoedler affair ranged from fraud, fraudulent misrepresentation and breach of warranty under the RICO Act in the United States (Ibid). Furthermore, the loss of trust in the expert raises questions surrounding authenticity in a post-truth world.

Adam (2017: 116) puts forth that this case unveiled the ‘lack of transparency over provenance, the unreliability of expertise and conflicts of interest between galleries and specialists’. Adam’s (2017) examples fill the pages of *Dark Side of the Boom: The Excesses of the Art Market in the 21st Century*, with questions of provenance rampant within the art industry. Cunning forgers, such as the case of British painter John Myatt, who in 1999 confessed to faking 200 modern artworks purportedly by Albert Giacometti,

Ben Nicholson, Nicholas de Stael, and Graham Sutherland; and along with Qian are notoriously famous for their conning the system.

What ensued with the Knoedler Gallery debacle led to a number of well-regarded and trusted art ‘experts’ suffering significant reputational damage for their authentication of these fakes, and a loss of trust and credibility. The solitary forger, an accomplished artist from China, Pei-Shen Qian, emerged, painting the works sold through Knoedler and one other Manhattan gallery. Today in Dafen, a village within the Shenzhen province of China, one can find hundreds of Rothko’s and Monet’s, which are correctly copied replicas of the original artworks. Given that copying is entrenched in the cultural traditions of Chinese culture, can this tradition classify them as ritual practices?

Furthering the concept of aura, will the deduction stand that since the ‘unique value of the “authentic” world of art has basis in ritual,’ then the ritual function is fulfilled in the Knoedler Gallery reproductions.

How could so many reputed art scholars and experts be duped? This research seeks to consider the *aura*, ‘the unique phenomenon of a distance’, surrounding these artwork (Benjamin 1936 In Ardent 1970: 216). Walter Benjamin (Ibid) asserted that perfect reproductions of works of art lack one element: its *aura*, the object's unique presence in time and space. According to Benjamin, photography and reproductions of works of art could not possess aura, which is integral to an artwork and as such cannot be mediated through mechanical production techniques (Tate, 2020). For Benjamin, a digital

replication or reproduction would serve to diminish and reduce the aura of the physical objet d'art: which non-fungible tokens are positioned to enhance.

Crane's (2019) discussion of artification in fashion collectibles compared the value of fashion collectibles vis a vis that of art collectibles. In this work, the growth of fashion exhibitions (Steele, 2008) in art museums was integral in fashion collectibles gaining cultural heritage status, along with auction sales. However, what the Knoedler Gallery, The Manhattan Gallery ETN and Salvator Mundi, say is that there is a seminal threat which museums and collectors are facing and must consider the financial, cultural, fiduciary-responsibility and reputational consequences of the industry's title risk. "The risk surrounding legal title of ownership of highly portable, high value art objects which physically more and actively trade throughout a globalised marketplace attract title risk" (Shindell, 2016: 406).

Shindell (2016) contends legal title does not equate to physical possession, a distinction which is misunderstood as it surrounds the notion of provenance. According to Shindell (Ibid: 408), "legal titles is the full and absolute legal and equitable ownership of property unencumbered by any interest in or to the property by any other person in the world". Title is a *legal concept* of ownership of property, states Shindell (2016: 408), it differs from *physical loss or damage* to art property due to external incidents which is insured through *property insurance*, and differs from *title insurance*.

The consequences of legal title questions were brought to a forefront during the examination of WWII-era stolen art, which saw the plundering and pillaging of art museums in Europe. According to Shindell (2016), legal title risk can include many forms of ambiguities surrounding title: such as commercial fractional ownership interests, which will be discussed further regarding non-fungible tokens.

Substantial economic loss due to issues in legal title risk, are not the only threat, which include questions of liability. Furthermore, transactions within the art industry involve actual title risk and perception of title risk. Such as the case for the museums involved in exhibiting the fakes procured from Knoedler Gallery. Furthermore, it can be argued that Christie's 2018 record-breaking sale of the *Salvator Mundi*, totaling \$450 million USD, finds Shindell's (2016) claim of the impact of the industry's concern surrounding title risk, wanting. The question that the Knoedler Gallery incident and *Salvator Mundi* sale raises is one of the values of provenance. Can it stand then that; authentic, validated provenance and constructed provenance are distinct? The former being, an undisputed chain of custody and ownership which can be traced throughout the life of the object, whereas the latter governs that which is reliant on art experts and existing methods of validation. Various forms of evidence, documentation, provenance, surrounding circumstances of contexts, scientific analysis, and judgement by eye are 'used and ignored opportunistically in ways that suit each advocate – who too frequently has undeclared interests' (Lewis, 2019: 39). According to Martin Kemp, known for his criticisms of the methodology of connoisseurship and attributions in art history, further

warns of the threat commercial incentives and professional networks pose to overshadowing scholarly research (Ibid).

CHAPTER FOUR

THE OPTIC OF BLOCK-TECH

Block-Tech and Social Theory

Miller (2018: 309) warns of hidden power veiled in the technology design. Algorithms, these layers of abstract code and protocols built are ‘sometimes too complex for their creators to understand – Protocols enforce rules too arcane for us to pay attention to’. For Miller (2018: 332-333) as with the Titans and Olympians, the death of the old gods and the entrance of the new gods sees technology as offering a ‘new kind of power, and new routes to power – technology is not only transforming democracy, but also rapidly outpacing it’.

Yet, increasing technological convergence and shift toward digitalisation positions the field of technology at the centre is nothing new. McLuhan considered an electric re-tribalisation of the West while for Marcuse, technology is inherently political, the idea of neutrality is a myth, the technological veil disguises the political machinations. In the society as outlined in *One Dimensional Man*, the productive apparatus tends toward totalitarianism. This apparatus determines the total society, “skills, and attitudes, but also individual needs and aspirations”, For Marcuse, “Technology serves to institute new, more effective, and more pleasant forms of social control and social cohesion” (ibid, 13). Further, this tendency toward totalitarianism he adds will envelop the developing and pre-industrial areas of the world, thereby creating similarities in the development of

capitalism and communism (ibid). Marcuse sees technology as never neutral, and any technological society is thus a system of domination maintained and manipulated through techniques of politics. “As a technological universe, advanced industrial society is a *political* universe, the latest stage in the realisation of a specific historical *project* – namely, the experience, transformation, and organisation of nature as the mere stuff of domination” (ibid:14).

For Marcuse (1964) in order to achieve qualitative change society needs to transcend the state of false consciousness which becomes the true consciousness. However, this ideological stance is heavily technologically determined where Marcuse’ treatment of society as a totality is reductive failing to consider individual action or unintended consequences. Yet, Marcuse sought to enhance a new mode of existence through qualitative change which he argued “involves a change in the *technical* basis on which this society rests” (1964, 31).

In a tech-led social environment, the economic forces behind the shift to digitalization are a concentration of big tech; Meta, Amazon, Alphabet, Microsoft. “You and I will be sitting on a conference room table soon with either our avatars or our holograms or even 2D surfaces with surround audio. Guess what? The place where we have been doing that forever...is gaming. And so, the way we will even approach the system side of what we’re going to build for the metaverse is, essentially, democratise the game building...and bring anybody who wants to build any space and have essentially, people,

places and things digitised and relating to each other with their body presence”, said Microsoft CEO Satya Nadella (Financial Times, February 2022).

The cultural intermediaries of the culture industry as postulated by Adorno and Horkheimer are ever present within a tech-culture industry. The pervasiveness of exchange relations as facilitated by and through cultural intermediaries such as tastemakers support the new digital landscape. “Metaverse-worlds are immersive applications that offer brands the possibility of reaching new audiences, notably Gen Z users” in a myriad of ways. Foucault’s claims about the ubiquity of power relations enrich the contention of the economic and political forces driving adoption of block-tech.

“Whoever becomes the leader in the sphere [of artificial intelligence] will become the leader of the world” (Vladimir Putin In Miller, 2018). In America, the speeches of Tench Coxe, an affiliate of founding father Alexander Hamilton, positioned the emergence of new technology as an American cultural symbol of progress and liberty (Marx, 1964: 297). According to Gouverneur Morris, “the time is not distant when this Country will abound with mechanics and manufacturers who will receive their bread from their employers” (ibid: 300). The role of the machine and its trenchant relations with economics and politics has undoubtedly become a hallmark of late capitalism.

Monarchy, fascism, liberal democracy, and communism were bitter rivals for political dominance, which saw different countries opting for divergent economic paths of protectionism, corporatism, the free market, and socialist centralised planning. According

to Fukuyama (1995:3) advanced countries have “adopted, or are trying to adopt, liberal democratic political institutions, and a great number have simultaneously moved in the direction of market-oriented economies and integration into the global capitalism division of labour” (Fukuyama, 1995: 3). With the dissolution of trust in people, block-tech emerges with the proposition to restore trust through technology.

Block-tech (blockchain technology) enables Web 3.0, a new layer of the Internet which is supported through a decentralised infrastructure and ecosystem. This mode of code relies on cryptography and thus opens new possibilities for relating the physical and digital. Early experiments with the technology emerged through the financial innovation bitcoin and other cryptocurrencies, modelled after the corner stone White Paper. A digital social contract is created through the consensus mechanism which validates the network and holds the chain accountable.

Rapid developments and advancements have occurred through the dispersal of the technology, i.e. the open-source code which created the first iteration (bitcoin network) appeared on the Internet ensuing in a globalised dissemination of the code. This conjured code configured the bitcoin network and thus the decentralised architectural infrastructure on the Internet commenced construction.

This new configuration of technology echoes Benjamin’s treatment of arcades as new environments promoting commerce, creation, consumption and social activity (Mattewman, 2011: 54). The earliest iterations and experiments to create new markets

where cryptocurrency and crypto assets could be traded catalysed the materialisation of the decentralised internet. Metaverse is created in 2021 to meet the burgeoning demand of gamification amidst the NFT boom. The Metaverse, a virtual heterotopia, can be perceived as a virtual world within worlds. These virtual lands emerge as another manipulation toward data accumulation, surveillance and control by big tech and corporate agents guised as a virtual utopia. Facebook, now Meta Platforms pledged to inject \$10 billion into its Reality Labs operation in 2022, while Microsoft has risked \$70 billion on a '*metafuture*' with its planned acquisition of Activision Blizzard, following VC funds crypto-related investments up to \$25 billion in 2021 (Boston Consulting Group, 2022).

Technological convergence is integral to the Metaverse, these Metaverse worlds, or m-worlds (Boston Consulting Group), gather millions of active users through smart devices; mobile phones, tablets and PCs in addition to advancements in cloud computing connectivity, e.g. fibre optic cables, 5G and leverage technologies of VR, AR and mixed reality through younger demographic markets such as digital natives of an app generation. A burgeoning mass market has developed for virtual assets powered by Web3 technologies which are affordably priced and easy to use, e.g. virtual reality headsets. To date, there exist approximately 300 – 500 million active users gathered in these m-worlds, supported through Web3 and Virtual assets at present, 30 million NFT wallets, 1 million active NFT wallets, \$40 billion NFT assets and \$50 billion in virtual transactions (fiat currency). This trifecta of technological convergence has at the intersection 30 million installed headsets (AR, VR, MR) with 800 million mobile AR users with a \$16

billion market comprised of hardware, software and advertising suppliers/agents (Matthew Ball; Bloomberg; Artillery Intelligence; Binance Research; BCG analysis of 2021 figures, 2022). Pop culture aficionados might find *Ready Player One* a suitable metaphor as *Into the Maelstrom* was for Marshall McLuhan. This ‘hideous terror’ may be evident in the unfolding of the meta spectacle as to what new behaviours and new ways of being will emerge.

In this section, the foundations of the technology are introduced through a sociological lens. Block-tech has been identified as ‘revolutionary’ (Tapcott and Tapscott), yet the problem with revolution as Arendt (2005: 11) points out is that however we might be tempted to define it should not be reduced to ‘mere changes’. When one considers the paradigmatic shifts involved in the Industrial Revolution it is with care and caution which must heed the examination of a paradigmatic, general-purpose technology. Block-tech integration within the new global division of labour will see shifts in production practices from traditional manufacturing trickling through various sectors and the modern economy. It is such ‘shifts in the nature of materiality’ which are worth examination (Thrift, 2005: 10). According to Marx, ‘the two great sources of change are the division of labour and machines’. In this vein, it is cognizant to consider the implication of block-tech as the technical apparatus and its relations to a new division of labour enhanced through digitalisation.

Theoretical examinations of technology have culminated in three schools: technological determinism, social constructionism and posthumanism. Technological determinists

argue that technology structures the social and hence exists external to social relations. For technological determinism, Ray Kurzweil definition of technological singularity surmises this stance, “a future period during which the pace of technological change will be so rapid, its impact so deep, that human life will be irreversibly transformed. Although neither utopian nor dystopian, this epoch will transform the concepts that we rely on to give meaning to our lives, from our business models to the cycle of human life, including death itself” (Kurzweil in Zizek, 2022: 50). For a digital native the absence of a smartphone would prove catastrophic to the daily functioning of the individual. Technology is ubiquitous and ever-present in our lives. Since the advent of computers the ‘technical substrate’ has been drastically altered (Ibid: 197) to consider this modern digitised society.

Technology, etymologically Greek, *techne* (relating to art or craft) ology (knowledge of), has origins in the seventeenth century in the field of mechanical arts, later acknowledged by Veblen circa the beginning of the Industrial revolution. As the scale of technological convergence increased so did the conceptualisation of the subject. Marcuse (1995: 124) defined technology as the ‘mode of production, as the totality of instruments, devices and contrivances which characterise the machine age at the same time, a mode of organising and perpetuating social relationships, a manifestation of prevalent thought and behaviour patterns, an instrument for control and domination’. Marx to Marcuse argue technological innovation is instrumental for bourgeois total domination. Further, Adorno and Horkheimer’s canonical culture industry thesis positions technology within the logic of

domination. Zuboff discussion of surveillance capitalism through the mode of technology enriches previous assertions of domination and control.

In contrast, Matthewman (2005: 27) suggests thinking about technology as artefacts, activities, knowledge and modes of organisation. “The form that a technology takes is the outcome of contestation, including that between social classes and between the limitless human imagination and those constraints imposed by the laws of nature” (Ibid). Further, to consider the capabilities of block-tech it is necessary to consider the ‘new risks’ (Matthewman, 2005: 26; Beck, 2004: 31) and associated threats. With every invention follows the risk and threats of unforeseen and unintended effects. After all it was Oppenheimer who quoted Vishnu, “Now, I am become death, the destroyer of worlds” upon completion of the atomic bomb.

It is impossible to consider this research without thinking of all the various stages of technological achievements and advancements requisite for the subject matter to merit attention. “Thus machine spinning made machine weaving necessary, and both together made a mechanical and chemical revolution compulsory in bleaching, printing, and dyeing. So too, on the other hand, the revolution in cotton-spinning called forth the invention of the gin, for separating the seeds from the cotton fibre; it was only by means of this invention that the production of cotton became possible on the enormous scale at present required. But as well as this, the revolution in the modes of production of industry and agriculture made necessary a revolution in the general conditions of the social process of production, i.e., in the means of communication and transport” (Marx, 1990:

505-6). The enormities and complexities are often characterised with technology and societal implications.

The term used to describe the distributed ledger technology (DLT) known collectively as the ‘blockchain’ is first mentioned, by Hal Finney in an email to The Cypherpunks, cryptography mailing list. In fact, the white paper creator Satoshi Nakamoto does not refer to the blockchain throughout the white paper, only referring to its description as ‘timestamp server’ (Nakamoto, 2009 In Brekke and Vickers 2019).

Symbolic power is resonant within the field of block-tech. Bourdieu’s *habitus* has weight to the ethnomethodological account of Devs and Suits, Blockchainers and Bitcoiners, Males and Females. For Bourdieu, the defining problem with historical materialism is that of reproduction, on both a symbolic and material level. This constant reproduction ensures the logic of domination: a determined structure where the dominant dominates the dominated. Within this mode of domination, symbolic power is used to improve the principles of the construction of social reality (Williams, 2022: 146). *Habitus* is theorised as a unified phenomenon, ‘a logic derived from a common set of material conditions of existence to regulate the practice of a set of individuals in common response to those conditions (ibid: 150).

Bourdieu’s *Logic of Practice* utilises ‘dichotomous distinctions’ in principles of categorisation during developmental years and which can later be applied across an expanse of fields. The introduction of cultural capital and economic capital are

inextricably intertwined for Bourdieu, where the convertibility of one can reproduce the other. Habitus, more so determines the cultural field of production one assumes; likened to a magnetic field, the forces in the field ‘by their existence, opposition or combination, determine its specific structure at a given moment of time’ (Bourdieu, 1971: 161 In Williams, 2022: 154). Time, a scarce commodity, which in Bourdieuan fashion is strategically invested within fields of practice with the aim of reproducing capital. Moreover, the availability and investment of consumption time may not an option for the dominated. Hence, cultural capital is acquired in the form of dispositions and competences (Ibid). For Bourdieu, the cultivation of certain competences and aesthetic dispositions are markers of distinctions and signal cultural capital, be it high or low. Bourdieu’s concept of reproduction is for Williams (2022: 168) problematic for its over-determinism and its distinction between ‘replication’ which he argues is really ‘reformation’. Despite this, Williams finds “Reformation – offers opportunities for real innovation in the social structure, for shifts in the structure of power in the field of class relations which, while falling short of ‘revolution’ in the classical sense are nonetheless of real and substantial historical importance and are objectively ‘revolutionary’ within a longer historical rhythm” (2022: 168).

Restoring Trust through Technology

Fukuyama (1995) identified the economic utility of trust as a key variable in the formation of an effective, modern state and successful cohesive society. Fukuyama posited proper government constituted three pillars: liberalism, democracy and the

modern state. Within modern society, trust amounts to a twenty percent solution to facilitate economic growth while the remaining eighty percent is explained away as ‘rational utility maximizing’ behaviour. While this may be contestable what has emerged within late modern society is a lack of institutional and governmental trust. This has deteriorated previous client-service relationships contingent on trust. Trust is explored further in *The Problem of Trust*, where Seligman (1997) navigates a plethora of examples to demonstrate how trust is being eroded and displaced by new ‘external’ system constraints which threaten the development of trust. This displacement of trust is for Seligman, the reduction of the individual to a ‘sum of group identities and an abstract matrix of rules’ (ibid).

Fukuyama argues that liberalism is threatened, and its discontents have resulted in calls for moderation. “On the right, there have been efforts to manipulate the electoral system in the United States in order to guarantee that conservatives remain in power, regardless of democratic choice; others have flirted with the use of violence and authoritarian government as a response to the threat they see. On the left, there are demands for a massive redistribution of wealth and power, as well as recognition of groups rather than individuals based on fixed characteristics such as race and gender, as well as policies to equalise outcomes between them” (2022: x).

Fukuyama uses *trust* to explain why some national economies succeed from a cultural context commenting on a distinction between low-trust and high-trust societies, where Italy, France and China constitute the former and Germany, Japan and the US, the latter.

The conditions for success within communities were formed out of a “set of ethical habits and reciprocal moral obligations internalised by each of the community’s members” (1995: 9). Influenced by Bourdieu, Fukuyama argued that the ‘acquisition of social capital requires habituation to the moral norms of a community and, in its context, the acquisition of virtues like loyalty, honesty, and dependability’ (ibid). Fukuyama argued that social capital arose from an abundance of trust in societies or communities. For Fukuyama, ‘a nation’s prosperity and competitiveness hinge upon a single, pervasive, cultural trait: the level of trust present in the society and this depends on “the crucible of trust” – social capital’ (1995: 7, 33).

This habitus is proposed as an accumulation of certain virtues and values deemed vital to the enrichment of trust, and what Fukuyama refers to as ‘spontaneous sociability’ a subset of social capital. Spontaneous sociability, for Fukuyama, constituted communities formed through non-kinship ties or through deliberate government intervention.

“Social capital has major consequences for the nature of the industrial economy that society will be able to create. If people who have to work together in an enterprise trust one another because they are all operating according to a common set of ethical norms, doing business costs less. Such a society will be better able to innovate organizationally, since the **high degree of trust** will permit a wide variety of social relationships to emerge.” (Fukuyama, 1995: 27). However, this degree of trust should be interpreted as the level of mutual trust which underlie economic relations. While Fukuyama’s *Trust* has been vociferously challenged, his observations on the implications of trust in society are daunting amidst the current period. Further, empirical evidence testing the ‘Fukuyama

conjecture’ has resulted in further confirmations of his previous claims (Laster, 2021; Ahmed, 2008).

Further, Fukuyama found that a lack of trust results in a system of formal rules and regulations often through a legal apparatus substituting trust ensuant in “transaction costs”. The need for trust or distrust created a gap for services to serve an intermediary function. Societies needs and decisions have been shown to shape our decisions about which technologies are adopted and how they are used. The same technology can be perceived differently across borders and cultures. In Japan, ‘keitai’ describes the mobile phone, which translates to ‘something you carry with you’ stressing a techno-social tethering (Matthewman, 2011), in contrast, the UK, use of mobile may refer to the freedom of movement. How a technology is used and mediated has strong and lasting implications for the death or maturity of the technology.

Current narratives surrounding block-tech suggest it heralds a revolution in restoring trust, a *novus ordo saeculorum*: a new age of connected intelligence. This spirit of revolution is characteristic of modern society, yet for Arendt (2005) the paradox of revolution is that its most famous iterations were in fact ‘restorations’. For Arendt (2005: 36) the ‘Glorious Revolution’ beckoned a ‘restoration of monarchical power to its former righteousness and glory’, while the American Revolution restored freedom by God’s blessing, as per the great seal of 1651. Hence, the proposition stands whether this block-tech revolution may be a technological veil for a restoration of trust or some other hideous terror.

A High Trust System of Exchange

Following the financial crisis of 2008, a displacement of trust in banks and accounting systems, through scandals like Enron and Worldcom, identified that even audited ledgers do not correctly protect investors through fraud and mismanagement the ‘cooked books’ revealed a broken system and a decimation of trust (Lall, 2020). The advent of distributed ledgers such as blockchains enters the techno sphere— ‘[the technology] has emerged through the developments of the Internet, centralised systems, and a world where “trust” has been lost’ (Lall, M. 2020).

Block-tech permits a prescient and unprecedented solution for the transference of value and ownership of digital assets without the use of an intermediary (Hoffmann, Strewe, and Bosia, 2017: 1 In Lall, M. 2020). Through capabilities of decentralisation and disintermediation, the technology has dispersed through direct user engagement accelerating its growth.

Mounting monetary pluralism evident in advanced capitalist societies are predicated on the existing paradigms of the modern economic system which hold concentrations of political and economic power between governments and corporations (Allen et al., 2018; Dodd, 2017). This epochal transition from centralised systems is made with the application of *decentralised trust* which replaces the need for trust in traditional third-

party intermediaries instead in trust based in mathematics (Antonopoulos 2014; Finck, 2019 In Lall, 2020). Within the blockchain ecosystem and community: *Code is Law*.

Quantum leap or digital snake oil, block-tech currently shows no sign of simply vanishing. The proliferation and progression of the technology is evident and not to be cast aside as ‘mere changes’ in the technical substrate. This research posits block-tech as characteristic of a general-purpose technology, which will be furthered. Blockchain technology facilitates the storing and capturing of data in a decentralised manner, hence it discourages manipulation of captured and stored data. The technology is a particular type of public ledger which entails a timestamped, tamper-evident digital record of all data blocks on the chain. Centralised systems, in contrast, store all transaction data in silos or one location which leaves the system vulnerable, with risk to corruption, hack and third-party manipulation. Decentralised networks facilitated through blockchains ensue in a network of independent computers referred to as **nodes**. Each node ‘records, shares, and synchronises transactions in its respective digital ledger’ (Basalla et al., 2021).

To date, blockchains consist of distinct consensus mechanisms which are utilised to enable a majority vote between the individual blocks to incentivise nodes’ good behaviour. This block validation is referred to as mining and is performed by specific network nodes known as miners who are then rewarded for each validated block accepted by the network (Zheng et al., 2017). The bitcoin blockchain, as the entrant blockchain, architecturally utilised a Proof of Work (PoW) consensus mechanism, which requires miners to expend computational resources to solve a complex computational equation for

the transaction block to be validated. In this instance, the successful miner performs a computational ‘work’ for the validation of the block which is then accepted and stored ad infinitum on the blockchain network. If two conflicting blocks lead to alternate chains, the block held in the longest chain after the following mining step is accepted as the consensus (Zheng et al., 2017; Basalla et al., 2021). According to Nakamoto, (2008) to cheat the proposed system would require a massive amount of computational power, which can alternatively be used to earn significant profit from participation in the network in a non-malicious way. In fact, the last decade has proved this theory which has spawned a new generation of crypto wealth, but also crypto risk and wealth wipe-out.

Limitations with PoW networks are consequent to its enormous expenditure of resources, energy-consumptive and considered slower, problematizing scalability. Alternative consensus mechanisms have emerged which allow different governance structures, such as Proof of Stake (PoS) and delegate systems. For PoS networks, miners with more coins have a higher probability of mining the succeeding block, as they have a higher financial stake in a token/currency and are thus more likely to remain honest. In contrast, delegated networks, stakeholders delegate miners on the network, as such the miners with more backing have a higher possibility to validate the next block. In this scenario, miners are incentivised for good behaviour in order to maintain stakeholder support. There are blockchain pilot projects which have combined delegate systems and PoS, (DPoS) which enable parties with higher stakes in the network to have a higher influence on delegates (Zheng et al., 2017; Basalla et al., 2021).

The earliest iteration of blockchain was developed for cryptocurrency transactions, which allowed anyone, anywhere with access to a computer to participate in the network. This type of blockchain is known as a public blockchain (Nakamoto, 2008). To date, advancements and developments surrounding the technology have led to the introduction of other types of blockchain architectures which may be permissioned, permissionless or confederated. While there stands no industry standard, or consensus process for classifying the various architectures, Zheng et al., (2017) discuss three blockchain architectures, based on the management of access rights: *public*, *private* and *consortium* blockchain. On a public blockchain, as evident with the bitcoin network, allows anyone to participate in the consensus mechanism. Hence, public blockchains are oftentimes referred to as *permissionless*. Since accessibility makes permissionless blockchains susceptible to manipulations and attacks, they typically comprise a PoW or PoS consensus mechanism. In contrast, private blockchains are fully controlled by a single organisation and allow nodes authorised by said organisation to participate in the consensus process. A hybrid of the two is referred to as a consortium blockchain, which is partially centralised and allows nodes of various organisations to participate in the consensus process. Since this participation for private and consortium blockchains is restricted, they are referred to as permissioned blockchains. Permissioned blockchains are architecturally configured with an additional level of security through the selection of participating nodes, and as such systems often employ faster but less secure consensus mechanisms like delegate systems (Zheng et al., 2017).

Since its inception, the blockchain ecosystem has exponentially grown across a breadth of industries within the public and private sectors (Casey and Vigna, 2017; Tapscott and Tapscott, 2016; Lall, 2020). Active companies in the space include technology providers (Google, IBM, Microsoft), banks and insurance companies (Goldman Sachs, JP Morgan, Barclays), logistics and transportation businesses (Maersk, DHL, Amazon), consulting firms (Deloitte, Accenture, McKinsey), and food suppliers (Walmart) (Lall, 2020). It is important to add that while this research is ongoing, major growth is expected within this still nascent industry which will see additions to the early adopters mentioned above.

Recent statistics suggest enormous growth potential of the technology: 2.3 Billion USD VC funding into blockchain startup companies globally in 2020, with the United States leading the charge at 51% share of all funding. The Winklevoss Twins, Tyler and Cameron Winklevoss, eponymously known for their involvement in Facebook, were key in popularising the technology through their own monetary endorsement of the technology, particularly bitcoin. To date, the twins collectively hold 1% of all bitcoin in circulation; given that there exist 21 million bitcoins ever, that is a significant proportion, earning them the overnight billionaire status (Mezrich, 2019).

Recent data highlight other developed nations investing in the technology with London cementing its position as a major hub for the technology with ~450 out of 520+ UK Blockchain companies based in London, followed by Edinburgh and Manchester (Blockchain in the UK 2021 Full Report). Further, it was found that cross-border payment and settlements were the largest individual blockchain use case, amounting to

16% of the global technology market, while assets and goods management accounted for 8.8% of the blockchain market. The former statistic confirms and is in keeping with recent advancements and the growth of decentralised finance (DeFi) companies. Forecasts suggest that by 2024, nearly 19 billion USD will be spent on blockchain solutions (Statista).

Key attributes of the blockchains are: peer-to-peer, consensus mechanism/algorithm, transparency, distributed and tamper-evident. These features will be further examined. Blockchains are *trusted protocols* (TP), that operate as a “**trust layer**, exchange medium, a secure pipe as well as a set of decentralised capabilities' ' (Mougayar and Buterin, 2016). Hence, the blockchain should be seen as a “new protocol that sits on the Internet, just as the World Wide Web sits on top of the Internet via its own technological standards' ' (Ibid).

Blockchain and other forms of distributed ledger technology (DLT) are positioned as radically disruptive technologies, which will “fundamentally shift the way in which society operates” (Wright and De Filippi, 2015). Hence, it is necessary to view blockchain through the lens of a socioeconomic paradigmatic technology. Blockchain’s unique advantage is its application of a “decentralised trust” by replacing traditional trust intermediaries with trust based in mathematics (Antonopoulos, 2014; Finck, 2019). To date, there exist three types of blockchains; *public*, *private/permissioned*, and *consortium or federated*. However, as the technology matures through further innovation within the space this may well change within the next five years. Blockchain, introduced

concurrently with Bitcoin, sought to solve the double-spending problem. For instance, if you tap in (make a payment) on the tube using your smartphone and on the return journey you use your debit card, the same linked to the smartphone, TFL payment system reads it as two separate payments, and cannot correct itself. Hence, a Blockchain could be integrated at TFL to eliminate this problem.

Following its introduction in 2008, adoption of the technology has increased exponentially, notably through the applications of cryptocurrency and non-fungible tokens, as has its endorsement within the technological and financial sectors (Casey and Vigna, 2018; Lall, 2020). The financial industry has explored the replacement of current critical aspects with the technology, illustrated by the payment process which facilitates real-time, direct, bank-to-bank settlement of securities exchanges (Casey and Vigna, 2018; Nofer *et al.*, 2017; Lall, 2020). The creation of cryptocurrency exchange platforms (Binance, Coinbase, Gemini) as well as a new stream of economics: “tokenomics” and “crypto economics”, elucidates the growing adoption of the technology. However, it is important to note that crypto exchanges have been vulnerable to major hacks and security breaches resulting in a lag in the technology mainstream adoption.

Mediatized Rituals of Blockchain

Studies in ritualistic aspects of human communication have received wide attention, viewed mainly through a sociological lens (Carey, 2009; Dewey, 1916 Durkheim, 1995; Geertz, 1957). The theorization of rituals elucidates on how the communication of

meanings, a highly mediatized process – shapes, maintains, and challenges human association in diverse forms. Further, within our social structures we communicate through shared symbolic systems to articulate the meanings **of** the social reality and **for** the social reality (Carey, 2000 In Cui, 2019).

The authors argue that society must dissent from a media-centric perspective toward the ritual power of everyday life and meanings that continuously occur through technologies dealing with data and metadata (Cui, 2019: 4156). This networked access of a global village enabled via blockchains, allows information sharing in a social domain, which can give rise to shared meanings (Ibid). According to Couldry and Hepp (2018), these shared meanings are not specific semantic understandings, but frames of relevance (Cui, 2019). Further, Cui (2019) argues that in deep mediatization, people join networks within social domains via technologies such as blockchain mining which through the access to the same processes, imposes a frame of relevance on a social actor's personal experience and phenomenologically *objectivates* it as a mediatized social reality (Berger and Luckmann, 1966 In Cui, 2019).

One of the aims of this thesis is to assess the techno-socio-economic impact of blockchain, through an ethnographic account of the vital role of the crypto-community on the rise of fintech and on whether this affirms a (re)energising of quasi-religious romanticism towards finance and technology' (Faustino et al., 2021). Through an ethnomethodological undertaking the research will seek to ascertain the role of 'community' within block-tech communities.

Faustino, Faria and Marques (2021) contend that blockchain technologies have had a ‘symbolic impact in re-invigorating enchantment and material romanticism towards finance and technology, which has had a wider impact on the social perception and acceptance of the transition to a digital society’. The origins of the technology is cloaked in enigmatic intrigue, comparable to the hero myth aspiring toward an enchanting and egalitarian world as in Thomas More’s *Utopia; the creation of a blocktopia*.

For Pearce (1989), Durkheim’s contention in his major treatise on religion, *The Elementary Forms of the Religious Life* – was that all things social starts with religion, and therefore exists no known society that does not possess or exhibit some form of religion (Pearce, 1989 In Chriss, J. 1993). Durkheim, in his final treatise, distinguishes between the sacred and profane, holding the perception that societies use of symbols as ‘externalised vehicles for the representation of intersubjective feelings and collective sentiment, and which serves to reinforce the social solidarity’ (Tiryakian, 1978: 220 In Chriss, 1993: 257).

“Vidich And Lyman (1985: 268) suggest that although they are all committed to some form of secularised (i.e rationalised) thought, neither Royce’s retreat into Pauline communitarianism nor Mead’s collective will of the generalised other, nor even Blumer’s conception of a secular ethics of the public interest are able to establish the kind of moral basis upon which societal members could orient their actions. This is because of the overly individualistic nature of the solution to the problem of how and by what process

the individual becomes free from religious control toward the ultimate privatisation of religion. In other words, as Habermas's (1987) linguification of the sacred suggests, there must be some outwardly visible, binding ethos or morality – the total way of life once provided by religion – by which societal members could guide their actions” (In Chriss, 1993: 265). Ethereum, it was found, more than Bitcoin, advocates a particular technologically mediated social order, which is appealing to the concerns of contemporary individuals and accordingly nurtures cohesion among their followers (Durkheim, 1962 [1912], Boyer, 2001). The event is symbolic and corresponds to the group codes and symbols. It is enframed and encoded by members of the community. The cryptic origins give the feeling of a ship being steered by an invisible captain, yet we must trust in the code that this is the right course embarked.

The philosopher Zizek examination of the ‘essence of technology’ builds on Heidegger, “the paradox of technology as the concluding moment of Western metaphysics is that it is a mode of enframing which poses a danger to enframing itself: the human being reduced to an object of technological manipulation is no longer properly human; it loses the very feature of being ecstatically open to reality” (2022: 31). Further, within these techno-social subcultures ‘invented traditions’ such as celebrations emerge to return to origins, for example the celebrations of Bitcoin Pizza or Bitcoin White Paper celebration subverting Halloween celebrations. Key events within the blockchain ecosystem represent ‘a type of periodical assembly’ which serves to bring together tech creators and enthusiasts from all over the world in one particular place for a limited period of time. Such an event represents more than just enabling the temporary expression of an

assembled group, as it is characterised by the explicit ceremonial dimension which is embedded in its *formal, stylised, and ritualised* format' (Faustino et al., 2021). Hence, ritual is the mechanism through which members participate recreating the “crescendo of collective sentiment forged around the symbolic understanding of *mana*, or the soul. Chriss (1993: 258) posits that in modern times especially, society feels the “urge to transcend the conditions of the mundane world of the economic life toward the extraordinary world of the sacred, because it is in these times of collective stimulation through ritual that primordial and ultimate understanding of being in the world are obtainable.

Holding to this, the entrance of blockchain technology sees a gradual transformation from material objects into functional institutions which are steadily constituted by contemporary communication technologies. Hence, reality is constantly constructed by ‘nothing but the preform of exchangeability’ (Simmel, 1978: 138) within deep mediatization (Cui, 2019: 4163).

CHAPTER FIVE

DEMYSTIFYING BLOCKCHAIN

A key pillar of the technology is in low-trust environments where participants have no way to trade directly or through an intermediary. As such the research finds the technology particularly of value for developing and third-world nations. Finally, due to the technology structure of append only, which doesn't allow for data to be removed – once it is on the chain it will remain in perpetuity. Some blockchains can be subject to tampering if a certain percentage of the network-computing power is controlled. The research will discuss the threat of mining pools later. However, it has been argued that this is largely impractical for such an attack where all previous transactions are rewritten. Furthermore, due to the immutable data structures the overall security will depend on the associated applications.

Block-tech as referenced in this study explores blockchains and differs from the bitcoin blockchain, while the latter is a type of blockchain. The Ethereum protocol and public blockchain has been identified as the blockchain of focus for this study, due to its wide-ranging applications and pioneer of the technology. As blockchains differ in technical infrastructure, from varying consensus mechanisms and permissions on the chain for public and private or permissioned blockchains; this difference will be further addressed through a comparative analysis of Ethereum and Hyperledger blockchains. Further, the researcher seeks to explore the growing trend of non-fungible tokens and its role as a

digital security now legally treated as property in the UK, and proposition that it solves issues in digital ownership for high-valued collectibles.

Bitcoin as a Store of Value

“Imagine that Bitcoin is successful and becomes the dominant payment system in use throughout the world. Then the total value of the currency should be equal to the total value of all the wealth in the world” (Finney, H. In Popper, 2015).

In 2008, the day known as Halloween or All Hallows Eve, Nakamoto published the Bitcoin white paper to the Cryptography Mailing List describing a “new electronic cash system that’s fully peer-to-peer with no trusted third party” (Nakamoto, 2008). Presented within the white paper was a detailed account of specific features of the software, Bitcoin:

- *Double-spending is prevented with a peer-to-peer network.*
- *No mint or other trusted parties*
- *Participants can be anonymous*
- *New coins are made from Hashcash-style proof-of-work.*
- *The proof-of-work for new coin generation also powers the network to prevent double spending.*

Bitcoin is held as a store of value consequent to its finite supply (21,000,000 bitcoins), transfiguring to an asset that retains its worth and can be exchanged in the future without price deterioration (CityAM). Central to Nakamoto’s (2008) white paper was the

requisite “miners”; these were anonymous volunteers, acting like Bitcoin’s auditors, tasked to do the work and verify every Bitcoin transaction. As new transactions are conducted, miners validate previous transactions to ensure legitimacy of each before adding them to a chain of previous and verified blocks starting with the “genesis block.” The “block chain” formed is simply a ledger of all pseudonymous transactions made on the Bitcoin network, which are both visible and unalterable to everyone (Miller, 2018).

On the bitcoin blockchain network, transactions are verified and approved every ten (10) minutes, which is then updated and reflected in a block linked to the preceding block, all in real time (Nofer *et al.*, 2017). Within this distributed network structure, all transactions are approved via a consensus protocol; in the case of Bitcoin, “proof of work” (PoW) is employed. Proof of work refers to the computational work by miners to validate transactions on the blocks. As such, this mechanism is not energy efficient and needs further critical examination (Popper, 2015). Blocks on the chain are permanently time-stamped and store value exchanges: the hash value of the preceding block, and a nonce (digital signature) (Nofer *et al.*, 2017). The culmination of these key features of the blockchain guarantees the integrity of the data and transactions recorded on the ledger. As the cryptographic values embedded on each block are unique, any alteration of even a single character would entirely change the respective hash value. Since its inception, a host of blockchain protocols have emerged (EOS, Ethereum, IOTA, Tezos), proclaiming proposed improvements contrasted to the Bitcoin protocol. However, Bitcoin’s blockchain model created a benchmark for other cryptocurrencies and blockchain protocols to advance, which rely on a *distributed*, *public*, and *encrypted* protocol,

requiring a public and private key to access, protect, and ensure security (Tapscott and Tapscott, 2018).

However, the emergence of bitcoin mining pools (groups of miners) threatens decentralisation. “Bitcoin has gone from being a transparent and open community to one that is dominated by rampant censorship and attacks on bitcoiners by other bitcoiners” (Hearn In Popper, 2015). The shift from GPU (graphic processing units) to Bitcoin-dedicated ASIC chips, offering higher computational powers has ensued in the emergence of mining pools, combining their resources to mine bitcoins, thereby forming factions of control within the network.

To date, consensus mechanisms have undergone heavy scrutiny and much research has been devoted to developing consensus algorithms to improvements in the technical infrastructure, such as DPoS (delegated proof of stake), PoS (proof of stake), which are gaining momentum within other sectors such as blockchain-based supply chains and digital asset registries. The shift from PoW to PoS is interesting, as the latter does not produce the environmental risks due to high-energy usage; it allows for more scalability and interoperability.

It was found that comparatively, PoS is a better alternative to PoW due to its low-cost and low-energy consuming feature. Furthermore, Proof of Authority (PoA) has been identified as a modified form of PoS in which a validator’s identity opposed to the role of stake is important. Codex Protocol Title Registry is a blockchain-based decentralised title

registry for the Art & Collectibles asset class, which uses PoS as its consensus algorithm (Codex Protocol, 2018)

According to Mezrich (2020), the origin events surrounding Bitcoin are tantamount to understanding the importance of its mainstream adoption. Zizek considers an event as ‘*a change of the very frame through which we perceive the world and engage in it*’ (2022, 10). Although *Silk Road*, an online marketplace located on the Dark Web, exposed a sinister trading underworld of illicit goods and services, it was by default a first use case for the digital currency. Erik Voorhees remarked that “Silk Road is just a proof of concept”, which demonstrated that “you can buy and sell real world goods with bitcoin” (Mezrich 2020: 73).

The following is a compilation of identified key events from Bitcoin’s origins: -

The Whitepaper: October 31, 2008 the Bitcoin White Paper is disseminated to The Cypherpunks: a cryptography online mailing list.

The Genesis Block: Satoshi Nakamoto initiates the Bitcoin blockchain network by mining the first block – Block 0 at 6:15pm (GMT), January 3rd 2009 with an embedded message ‘The Times 03/JAN/2009 Chancellor on brink of second bailout for banks’.

The First Transaction: January 10, 2009, Hal Finney receives 50 BTC when prompted to participate on the Bitcoin network.

Bitcoin's First Valuation: October 5th 2009, the New Liberty Standard published that the cost of running a machine to mine bitcoin was estimated to be 1,309 BTC per US dollar.

First Real-World Transaction: May 22nd 2010, the sale of two pizzas for 10,000 BTC was made on the Bitcointalk forum between Laszlo Hanyecz and Jeremy Sturdivant.

Satoshi disappears: December 2010, Satoshi ceases communication.

Bitcoin reaches parity with USD: February 9 2011, 1 BTC is valued at \$1 USD.

Wikileaks accepts Bitcoin: June 15th 2011, Wikileaks announces via Twitter its acceptance of donations in Bitcoin.

Cypriots buy Bitcoins: March 2013, following the financial collapse of Cyprus, citizens move to invest in Bitcoin in an attempt to preserve their savings.

Silk Road Closure: October 2013 the FBI seized approximately 26,000 BTC from Silk Road during the arrest of Ross Ulbricht or known by his online moniker as Dread Pirate Roberts.

China Investment surges Bitcoin to \$1,000: November 28, 2013 sees BTC value over \$1,000 due to China-backed investment in the cryptocurrency.

BTC/BCH Hard Fork: August 1st 2017: Scalability and Centralization concerns around the growing technology leads

Roger Ver, Craig Wright and Jihan Wu to instigate a ‘hard fork’ of the Bitcoin protocol, creating Bitcoin Cash. Anyone with bitcoin at the time of the fork now possessed Bitcoin ‘Classic’ and Bitcoin Cash.

Bitcoin Booms to \$10k: November 28th 2017, Bitcoin surges with a meteoric rise past \$10,000 climbing to \$19,891 USD one month later. Bitcoin skyrockets to an all-time high of over \$60,000 USD toward the end of 2021. From October 2020, bitcoin moved from \$13,573 to \$61,374 in Oct 2021. At the time of editing this thesis, it has reduced to approx. \$49,000 USD.

Bitcoin becomes National Currency: June 10 2021, El Salvador becomes the first country to formally adopt bitcoin as legal tender alongside the US dollar in historic bill – *Ley Bitcoin*. Important to note, El Salvador commences its experiment with Bitcoin from September, 2021.

Ukraine adopts law ‘On Virtual Assets’: September 9th 2021, Ukraine passes legislation to regulate Crypto Market, defines Virtual Assets.

(Popper, 2015; Mezrich, 2020; Bitcoin.com, 2021) *Note this list is subject to additions following this thesis writing.

Early adopters of the technology, referred to online as ‘Bitcoiners’ (Mezrich, 2020:60; Popper, 2015) were instrumental in the dissemination of information as well as shaping

the narrative surrounding the technology. Prior to the inclusion of the Winklevoss brothers to BitInstant: a bitcoin exchange; involved parties Charlie Shrem, Gareth Nelson, Roger Ver and Erik Voorhees, were turning over around two million monthly on the buying and selling of bitcoin. However, due to issues concerning compliance and the exchange's involvement with Silk Road's Bobby Faiella, known on BitInstant as BTCKing, the exchange ceased operations amidst investigations in money laundering.

At the time of writing, El Salvador has just announced that Bitcoin has been made the country's national currency, amidst yet another 'bull run' of the canonical cryptocurrency. However, the digital currency's high volatility makes it a risky investment. Despite this, the growing trend toward crypto currency adoption along with aggressive marketing tactics employed by various agents suggests a long-term agenda.

Ferguson's endorsement of the financial innovation of crypto currencies and Blockchain-based money is clear and concludes that this best occurs through deregulatory practices. At the time of Ferguson's writing of *The Ascent of Money*, in 2019 his assertion of Bitcoin and blockchain-based money as a '*potentially important novelty, yet it remains little more than a rounding error relative to the established financial system: total cryptocurrency market capitalization in 2017 was just 0.7 percent of world GDP*' (Ferguson, 2019: 424). At the time of writing the market cap in 2021 is \$2.26 Trillion USD with over fifteen thousand registered crypto currencies (Coinmarketcap).

Although speculative markets associated with the technology have proven despite high yields, it carries potentially enormous financial risk. A recent experiment with stable coins through the Terra Luna stable coin has proved unsuccessful ensuing in a major crash of the cryptocurrency prompting investors and analysts to take a step back to assess risk capital available within such highly volatile and speculative markets. Economist George Soros (2008: 10) advised a new paradigm for thinking about markets and bubbles by employing reflexivity, which he argued can be interpreted as circularity. For Soros, the credit crisis was a microcosm of a larger bubble which has been growing post Bretton Woods, following an era of credit expansion. The treatment of markets as self-correcting, and perfect equilibrium he adds is a false assumption. Further this speculative, or what Soros refers to as the ‘super-bubble hypothesis’ results in a ‘boom/bust’ model typical of speculative markets with high volatility. This market fundamentalism addresses manipulation and unintended consequences within an economic policy approach. However, as markets are cyclical today’s bust might be tomorrow’s boom.

Despite being “the most discussed financial innovation of the past decade” (Ferguson, 2019: 438), there is still a long road ahead for cryptocurrency adoption, integration, and regulation. Ferguson saw early adopters via technology enthusiasts with libertarian beliefs and criminals [see Moore’s Outlaws]. The appeal of bitcoin amongst criminals lies within its technical infrastructure that allows for disintermediation and anonymity. Apart from a previous reputation of an outlaw currency, the history of the nascent technology is shrouded in mystery and intrigue producing a mythical and

intangible quality – an Arthurian legend, where the sword of Excalibur is the invention of bitcoin gifted to the world by the elusive unknown, Satoshi Nakamoto.

Blockchain requires no third-party intermediation, the latter comprising services provided by banks and third-party agents. This growth of decentralisation through disintermediation has been met with condemnation within the traditional fintech services and providers, as seen in J.P. Morgan CEO Jamie Diamond’s remark that Bitcoin was ‘worse than tulip bulbs’, labelling it a fraud that would eventually blow up (Ferguson, 2019: 439). However, JP Morgan would eventually see the merit of the technology and jump on the bitcoin/blockchain bandwagon by launching its own coin “JPM coin”.

According to Charlie Shrem, “Bitcoin with a capital *B* refers to the *protocol*, i.e. the Bitcoin Network” (Shrem, C. and Vorhees, E. in Mezrich, 2019). These protocols, operating much like the internet protocols (IP), are the digital pipes of the internet and the Bitcoin protocol operates as another set of pipes which allows for **bitcoins** to move from point A to point B, facilitating transactional arrangements. Blockchains, according to the Tapscott brothers (2016, 2018) can be viewed as **trust protocol** [s] (TP), “this protocol is the foundation of a growing number of global distributed ledgers called [blockchains]” (Tapscott and Tapscott, 2016, 2018: 6). As the bulk of extant literature on the technology surrounds its use case in cryptocurrency, namely Bitcoin (Saifdeen, 2016; Popper 2015; Mezrich, 2019), there yet remains confusion regarding the technology and the narrative being shaped by the media and evangelists (Lall, 2020). The philosophical connotations

surrounding blockchain and bitcoin and its origins rooted in libertarian beliefs, is worth further examination.

Blockchain Explained

The fundamental idea behind blockchain is a ‘time-stamp server’ – a high-trust accounting system as a system of exchange. Through decentralisation an open and shared public digital ledger with immutable or tamper-evident record keeping capabilities produces a transparent and traceable chain of transactions to all users on the network (Tapscott and Tapscott, 2018; Dodd, 2017; Finck, 2019; Lall, 2020). A consensus algorithm and cryptographic computing facilitates the blockchain integrity. The data contained on the block may related to details of the financial transaction (time-stamped), along with metadata; including details of asset ownership, as well as the verification of the authenticity and provenance of physical goods such as artworks, luxury goods, and pharmaceuticals (The Economist, 2015; OECD, 2016). Blockchain, thus, operates as a high trust accounting system and system of exchange through data transparency and accountability.

Casey and Vigna (2018) highlight some use cases as follows: title and digital asset registries, blockchain-based supply chains, self-sovereign identities, decentralised computing. However, the abundance of use cases identified to benefit from the implementation of the technology is varied and growing at an exhaustive rate. The

amalgamation of transparency, cryptography, and economic incentives applied through a blockchain network allows appropriate conditions for good behaviour and users to trust the transactions conducted without the need for intervention by central institutions such as banks and other intermediary bodies (OECD, 2016: 107; Allen, Berg, and Novak, 2018). This substantive reduction of costs is highly attractive to the plethora of SMEs (small and medium-sized enterprises) cementing their foothold within the blockchain ecosystem economy, and further opens possibilities to create new business models and replace traditional institutions dependent on their functioning as verified, trusted third parties. Within supply chains and the logistics sector, decentralised Internet of Things (IoT) paves the way for major advancements in the secure transportation of physical goods (Casey and Vigna, 2018). Blockchain's structural design enables the ability to secure intellectual property, provide authentication, and record provenance of goods, thereby reducing counterfeiting. At the time of writing the research recognizes the following start-ups as positioned as blockchain-based anti-counterfeiting solutions: BlockVerify, Ambrosus, VeChain and SigmaLedger. Veracity Protocol and its Authenticity of Things (AoT) approach utilising the technology to 'destroy the counterfeit world of luxury goods', the study identifies as one which a longitudinal study may be employed for future research. Further, Veracity Protocol's work with NFTs is noteworthy (NFLPA Rookie Premiere Event in LA). The protocol conveys a new security standard to combat counterfeits through digital fingerprint technology (stored on a blockchain) – bridging the physical and the digital realms. However, as this study is ongoing much has since changed from inception of the study and is subject to change further as the space expands.

Identified as the “trust machine” (The Economist, 2015; Casey and Vigna, 2017), the potential benefits of the technology transcend the economic into the political, humanitarian, social, and scientific realms (Swan, 2015). Imagine the ability to scan a packet of coffee beans or a vintage bottle of wine and then to see a video illustrating that chain of custody, from the picking of the grapes all through to distribution ports ending up on the shelf you’ve just picked it up off – this fosters transparency and trust between brands and consumers. The *woke* zeitgeist tote cultural values which necessitate accountability, transparency - a trajectory toward a more egalitarian and enlightened world (Thomas, 2019). In that vein, retail, fashion and luxury sectors have adapted to this shift in consumer behaviour and attitudes with a focus on more transparency and sustainable solutions (McKinsey Report: The State of Fashion, 2021). Consumer shifts to secondary sales markets and resale of luxury goods to testing opportunities in the metaverse have been highlighted.

Block-tech adoption poses significant risk to counterfeiting, thereby threatening its existence much more than market expansion. Blockchain technology constructs a new platform for creators of intellectual property to receive ‘value’ for their work, enhancing the notion of value (Tapscott and Tapscott, 2018). Within the creative industries, blockchain can provide alternative revenue streams for artists. Food suppliers’ application of the technology has answered calls for sustainable and radically transparent supply chains. London-based firm Provenance allows consumers the opportunity to track and trace foods from farm to fork (Provenance, 2019), the technology offers the

assurance of integrity regarding government records and services – for instance, the collection of taxes, refugee information, and voting records (Casey and Vigna, 2018). Enterprise Blockchain solutions enable identity verification, cross-border payments, data verification, real-time reporting & accounting (digital invoices), audit of supply chain data (Blockchain in the UK 2021, Report).

Within traditional protocols of Internet applications, the main facet is the exchange of information (OECD, 2016). Blockchain builds on this by enabling a high-trust system to exchange value. However, Blockchain carries philosophical, cultural, and ideological underpinnings, which ought to be addressed and understood (Mougayar and Buterin, 2016: 20). A further concern worth consideration is that data immutability on the blockchain has the potential for manipulation and used for nefarious and criminal purposes to induce new forms of consumption.

McLuhan's prolific pronouncement, "the medium is the message," is testament to the adoption and adaption of technology in our lives today. Technology has been shown to enrich and improve daily life from a use-value consideration (Berardi, 2019) and embedded in American symbolism (Stiglitz, Marx). Stiglitz (2019) argued that society is now heading into a deindustrialisation period as we transition from a manufacturing economy to a service sector economy where services like block-tech may be harnessed to promote accountable systems of exchange. Just as the Internet proved to reshape our understanding of technology and its vast potential, Darwinian dictum dictated adapting to these new modes. Although this adaptation is inevitable, individuals must aim to learn in

order to understand the full potential as well as the ramifications of the emerging and existing technologies. In an information age, the behemoths, such as Google and Facebook, are guilty of collecting data and invading personal privacy for monetary gain and the assurance of national security (Tapscott and Tapscott, 2018, Lall, 2020).

Blockchain is not a new Internet or protocol; as Mougayar and Buterin (2016: 23), succinctly state: “there are no previous paradigms for the blockchain.” Blockchains, much like the Web, rely on the Internet to function efficiently. This allows for the development of applications, or in the case of blockchain, decentralised applications (DApps). Hence, blockchains are a “trust layer, exchange medium, a secure pipe as well as a set of decentralised capabilities” (Mougayar and Buterin, 2016).

Other concepts supported by the advent of blockchain technology have gained significant headway within recent years; Nick Szabo’s (1997) conceptualization of “**smart contracts**” is imperative to blockchain-based solutions. Smart contracts combine “computer protocols that facilitate, verify, execute and enforce the terms of a commercial agreement” (Swanson, 2015: 15)). The automated execution feature inherent to smart contracts can ultimately replace the need for banks and lawyers acting as mediators for asset deals (Fairfield, 2014). Szabo’s invention could topple existing hierarchies through disintermediation, shifting the status quo and supporting financial inclusivity.

Vitalik Buterin, founder of Ethereum, described blockchain as ‘a magic computer’.

Vitalik and Ethereum paved the way as pioneers of the technology; with the creation of

the ERC-721 standard, smart contracts could be used on the public blockchain, enabling a host of applications. Ethereum's aim was to provide the technology to write new smart contracts, which would carry out contractual stipulations once pre-agreed conditions were met (Miller, 2018). Smart contracts, once implemented, would permanently and publicly reside on the Ethereum blockchain. Following this breakthrough, Linux Foundation's Hyperledger emerged: a private-based smart contract blockchain, supported by IBM and Intel. Hyperledger provides solutions for enterprise blockchain projects requiring a level of privacy to safeguard investors and stakeholders. Blockchain projects have amassed substantial monetary investments, witnessed in the three largest crowdfunded projects to date, which have been based on blockchain.

Limitations

Criticisms to "Blockchain in a financial context", Grym (2016) contends that while Bitcoin solved the double spending problem, it has not even attempted to solve the price stability problem and it is not clear whether central banks are the only solution to this problem. The price stability, i.e., the volatility of cryptocurrency and crypto assets, which without regulation will continue to problematise adoption. The price stability is an indicative feature of crypto markets which are intangible, decentralised currencies with no centralised or regulating body such as a bank. Although, some banks have started blockchain programmes and introduced digital coins (JPM Coin), without legislation creating crypto wealth extraction may ensue in crypto wealth destruction.

Furthermore, current iteration of block-tech suggests poor scalability. The volume of transactions that the Bitcoin network can handle every second is roughly ten thousand times less than payment networks like VisaNet, Hyperledger fabric does not scale well either, around 200 nodes per limit. Despite, these drawback authors have explored the potential impact of blockchain on supply chain management, in the short term. Jeremy Wilson, vice-chairman of Barclays Corporate Banking, points out that blockchain can reduce supply chain paperwork. He mentions the first blockchain-based trade-finance deal. The process, from issuing to approval of the letter of credit, usually takes between 7-10 days, but could be reduced to less than 4 hours (2011). The potential lead-time reductions exist more broadly in global supply chains – import, export, and port documentation could all be expedited.

Hofmann et al. (2012) posit using blockchain in supply chain finance could expedite processes and lower the overall costs of financing programs. For instance, blockchain could simplify payment insurance methods, decreasing the need for letters of credit and therefore reducing transaction fees, increasing speed and transparency.

Some individual products are challenging to duplicate, and individual items are relatively easy to identify. In these cases, the key to supply chain management involves establishing provenance of items traded, and blockchain can ensure a transparent, secure, un-editable and non-detectable provenance which could help all parties in the supply chain.

However, current supply chain operations R&D's have been working to address these issues. Much of the discussion of the impact of blockchain on supply chain management is more forward looking, not so much exploring how blockchain could impact supply chain TODAY, as focusing on potential future supply chains. Tapscott and Tapscott (2015) consider the possibilities of using blockchain technology for the end-to-end supply chain. For the Tapscott's (2015) smart contracts will enable companies to contract for price, quality, and delivery dates with just a few clicks of mouse, and suggest many other ways that blockchain can impact supply chain management (SCM). However, articles written in the past two years are presented at a relatively conceptual level, so it's difficult to assess practicality and proof of concept. Alsmiller (2013) suggests that blockchain can be used to track items from suppliers to ensure that products are genuine and accurately described and safely and correctly transported. Williams and Gerber (2014) also discuss the benefits that transparency will bring to the supply chain, focusing on how blockchain will allow us to see where our food was grown.

Provenance Ltd (2015) states that since every transaction along the blockchain-enabled supply chain is auditable, smartphone applications will be able to display all relevant information to the consumer in real time, and crucially this information can be completely trusted. However, many hurdles currently exist that make using blockchains this way, a further challenge. Several researchers have also considered the application of RFID to agri-food traceability (Tian et al., 2017). Specifically explores the potential of an agri-food supply chain enabled with RFID tags and blockchain technology. Tian et al., (2017) highlights an important question that has not been

considered previously: “Whether the information shared by supply chain members in the traceability systems can be trusted.” The authors concede that RFID and Blockchain together can improve the efficiency and reliability of the agri-food supply chain, because he believes the biggest problem in traditional centralised supervision of the agri-food supply chain is “Monopolistic, asymmetric and opaque information system which could result in the trust problem, such as fraud, corruption, tampering and falsifying information”.

While the authors underscore an important concern, it is unclear how this solution can fully address this concern. Important questions raised regarding the future blockchain-enabled supply chains, and whether through disintermediation will incur in overall price increase or reduction from the absence of third-party vendors, which blockchain will render obsolete. For Jabbari and Kaminsky (2018), blockchain and related technologies will need significant enhancement for these visions to become reality.

Preliminary findings suggest that within research of consensus mechanisms, there exist two main models: Proof-of-Work and Proof-of-Stake; within the PoW algorithm, computational work results in reward (good behaviour model), however this ‘work’ requires copious amounts of energy which is unsustainable. Meanwhile, the PoS model is appealing for many reasons; better energy efficiency, reduced hardware requirements, stronger immunity to centralization, and stronger support for shard chains (a key upgrade in scaling the Ethereum network (Ethereum)). The stake, like the ‘work’, is an incentive for good behaviour. Hence the consensus mechanism is the driver of good behaviour, which allows for an incorruptible chain? If however, enough nodes centralise, for

instance China controlling the network through cheap gas and energy costs notwithstanding the presidential endorsement of this ‘breakthrough technology’, may yet prove problematic to the integrity of the chain through centralised power.

Although the merits of blockchain identified in this entry have proved to surpass expectations of previous technological inventions, there challenges and limitations regarding the technology. Blockchain technology has been criticised as a control mechanism in an age of surveillance, and vulnerabilities to 51 percent attacks problematize its mass adoption. Furthermore, the technology presents a profound challenge to traditional services based on centralised systems, which represent the majority of businesses worldwide. Scholars within the research stream have raised other technological hindrances such as technical limitations: scalability, interoperability, security, and environmental and privacy concerns (Finck, 2019). According to the “six laws of technology,” as outlined by Kranzberg, “technology is neither good or bad; nor is it neutral” (Mims, 2017; Bastani, 2019). Hence, blockchain, like previous technologies, is susceptible to manipulation to serve either benevolent or malicious ends, contingent on the social, political, and ethical circumstances from which it is conceived. Moreover, a blockchain, whether private or public, relies on an encrypted, decentralised, transnational, peer-to-peer network, thereby making it difficult to regulate (Mims, 2017; Bastani, 2019) Without a regulatory framework it will dwarf the potential of blockchain in the coming years. Questions regarding the viability of the technology continue to persist: can blockchain be considered a quantum leap forward or is it, on the contrary, a digital snake oil?

CHAPTER SIX

THE CREATIVE DESTRUCTION OF BLOCK-TECH

Innovating and Disrupting

For economist Joseph Stiglitz, resultant from advances in economics have enabled society to better manage an economy confronting innovation (2019, 121). For Stiglitz, “new technologies have opened new avenues where power and money begets more power and money” (2019: 132). Tim Hartford’s, author of *“Fifty things that made the modern economy”* identified innovative systems as paramount to social advancement (2017). Inventions like the shipping container, barcode, public key cryptography, double-entry bookkeeping, intellectual property and cold chains, are integral to our socio-economic systems and way of life. Considering the above-mentioned inventions, double-entry bookkeeping enables us to understand the power of blockchains. Circa 1495, Leonardo Da Vinci, made a to-do list which included the task to *“learn multiplication from the Italian root from Maestro Luca”*, whom he refers to is none other than Luca Pacioli, a Franciscan friar and a professor of mathematics credited as the ‘father of double-entry bookkeeping’ (Hartford, T. 2017: 143). Pacioli’s system relied on Venetian bookkeeping; *alla Veneziana* (Ibid). The dissemination of Pacioli’s book, which was also contingent on the help of another invention, the Gutenberg printing press, positioned Venice as an enlightened state. This elegant system saw the birth of accounting with the introduction of **ledgers** – ‘the foundation of the system, the double-entries themselves’ (Ibid: 146). Ledger technologies have governed social milieu for centuries, especially

with the advent of modern capitalism (Casey and Vigna, 2018 In Lall, 2020). Casey and Vigna (2018: 34) put forward that blockchain technology does not act as a “trustless” solution, “but as a tool upon which society can create the common stories it needs to sow even greater trust, to build *social capital*, and forge a better world’. This world, the authors contend, requires decentralisation to act as the catalyst for change, which supports “citizen’s rights in the information marketplace” (Ibid: 248).

Creative Destructive Forces of Blockchain

Schumpeter puts forth in *Capitalism*, a capital engine that drives how economies evolve through the process he describes as ‘creative destruction’, depending on entrepreneurial innovation (Yueh, 2019: 171). For Schumpeter, innovation requires continuous disequilibrium, which is furthered through entrepreneurial transformation. Unlike his confrere Marx, Schumpeter perceived ‘creative destruction is the essential fact about capitalism’ (Schumpeter, 1942: 83).

This ‘perennial gale’, creative destruction occurs as a consequence of new technological innovation, which supersedes the old technologies. Moreover, during the mainstream adoption period, these new technologies provide a boost to economic growth.

Schumpeter saw the economy as constantly changing resultant to waves of technological innovation, which explained how countries became more productive and wealthier over time. For instance, Innovation in China has spurred major economic growth as Chinese embrace the new wave of technological advancements.

Authors argue the need for a new paradigm to explain the wealth of nations (Aghion et al., 2021). According to the authors, the Schumpeterian paradigm is inspired by three ideas, never before tested (Ibid): *Innovation and the diffusion of knowledge are central to the growth process; innovation relies on incentives and protection of property rights and creative destruction.*

Creative destruction, as developed by Joseph Schumpeter, authors argue is a ‘tangible and measurable reality’, which can be perceived through the emergence of new technologies, measured by the number of annually filed patents by country or region (Aghion et al., 2021: 5). Furthermore, there exists an evidently positive correlation between the rate of innovation and the growth of per capita GDP: ‘states that innovate more grow more quickly’ (Ibid).

‘Should we fear or wish for technological revolutions?’ (Aghion et al., 2021) The authors measure the impact of creative destruction against the economic growth, by challenging two notions; technological revolutions ensue in an acceleration of growth and secondly, and technological revolutions are detrimental to employment. The findings however, offered different results and demonstrated that none of the past technological revolutions resulted in mass unemployment. ‘Automation is not an enemy of employment’; the modernization of the production process through automation drives more competition in firms, which enables the productivity effect (Ibid: 53).

The three technological revolutions examined started with the invention of the steam engine triggering the first Industrial Revolution, the second following the invention of the light bulb and finally the revolution of Information Technologies (IT), which stemmed out of the invention of the microprocessor by Federico Faggin, Marcian (Ted) Hoff, and Stan Mazor at Intel in 1969. Aghion et al., (2021) argue that a technological revolution originates via some instrumental innovation that creates a general-purpose technology or GPT, which will alter the global economy. This research seeks to place blockchain technology as a GPT.

GPTs are characterised by three main tenets: 1) they spawn successive waves of secondary innovations, each of which corresponds to the adaptation of the GPT to a specific sector of the economy, 2) these technologies improve, allowing their cost to users to decrease over time and 3) they are pervasive: these technologies spread to all sectors of the economy (Ibid: 42). Furthermore, these secondary innovations lead to the adoption of the GPT to the needs of a specific sector; for instance bitcoin and other cryptocurrencies is a financial innovation derived from blockchain technology. It can be argued that such innovations are secondary innovations in that they increase productivity and are sources of long-term growth. However, the authors contend that such innovations take time, which can stall growth, as well as diverting resources away from production. The authors posit that a sharp increase in patents filed per capita is indicative of the surge in secondary innovations. Therefore, recent statistics within the UK unveil an exponential surge in patents filed in the UK within 2021 alone, and which continues to grow (Blockchain in the UK 2021, Report). It can further be argued that the growing popularity

of NFTs is indicative of a secondary innovation, as they posit a new GPT follows an S-shaped curve (see Appendix 1). Furthermore, a new GPT requires time to learn to bolster it effectively and efficiently as such this is a measurable phenomenon: ‘as new machines integrate the GPT more efficiently, prices will drop for existing machines which rely on earlier versions of the same technology’ (Ibid: 46). For instance, the price in 1999 for a mobile phone would have been astronomically high and thus unaffordable to most, today mobile phones are easily accessible and affordable. In fact, mobile phones entered Africa leapfrogging the country to a digital revolution and bypassing earlier technologies such as the PC (UN.com 2017).

The Blockchain Ecosystem

Common with new and emerging technologies as previously discussed, is a period of learning and leveraging the technology toward proof-of-concept. Blockchain technology is a pervasive topic within the last two years, particularly during the Covid-19 pandemic, which saw exponential growth in adoption and integration of the technology. However, there still exists confusion and mystery regarding the technology. For those within the sphere of blockchain technology, a certain technical literacy is required to understand technical components, which allow the technology to be harnessed for the benefits continuously propagated in the media. This study seeks not to investigate the phenomena of technological revolution, nor does it set forth to question its hype. Blockchain technology has been identified as an anti-counterfeiting technology based on endemic features of the technology, which the researcher will argue can drastically shift the status

quo and alleviate extant issues within the luxury sector, particularly issues with supply chain management. However, it is worth mentioning that this mode of technicalisation requires certain technical skills which may result in a sort of technological polarisation (Stiglitz, 2019: 119).

Blockchain technology maintains key features found in disruptive innovation, such as novel ownership, simplification, and value networks (Mitselmakher, 2019). Furthermore, Mitselmakher (2019) identifies long-term implications of the technology, which consider the impact of transparency, trust, and disintermediation, which this study seeks to discuss.

Within the sphere of Blockchain technology, there exist separate factions whose purpose is to evangelise the virtues of the technology, extol the age of decentralisation and a shift of the status quo. For instance, a bitcoin maximalist will consider the absolute and only successful use of the technology is through the application for bitcoin (Participant AA, 2020). Furthermore, authors within the field of blockchain academia and experts glorify the technology and spout words such as “revolutionary”, “decentralisation” and “trust machine” to anyone willing to listen. But what does any of this mean? How can we understand the benefits of the technology?

According to the Global Blockchain Benchmarking Study (Hileman and Rauchs, 2017), from 2017 more than ninety central banks have engaged in the use of the technology, more than two thousand jobs created within the blockchain space and twenty-four nations push favourable regulation of the technology, particularly Malta (Crypto Island) and

Gibraltar. At the time of writing, El Salvador has made bitcoin its national tender, paving the way for other nations to follow. Since bitcoin was the first major use case of the technology, most available research discusses the technology within the framework of bitcoins, cryptocurrencies and decentralised finance (DeFi). Decentralised Finance (DeFi) has witnessed a major surge in companies formed within the space, and as such the researcher estimates it will gain rapid adoption within the financial technology sectors.

Casey and Vigna (2017), identify potential use cases of the technology as follows:

Uninfringeable property registries, Real-time, direct, bank-to-bank settlement of securities exchanges, Self-sovereign identities, Decentralised computing, Decentralised Internet of Things, Blockchain-based supply chains, Decentralised media and content.

Despite this plethora of potential use cases and technological underpinnings, critics argue that after a decade since the technology was released to the world, no meaningful use cases have achieved widespread adoption (Stinchcombe, K. 2019). However, drawing on a Schumpeterian understanding of disruptive innovative technologies, this time lag is indicative of the learning and integrating period. Within this period, global industry and entrepreneurs build and share knowledge to foster the use cases.

Nations have explored the potential of blockchain technology, sped up by the global pandemic of 2020, which saw blockchains' use within the medical industry. BioNTech, the biotechnology firm responsible for the development of the Pfizer BioNTech Covid19 vaccine, has leveraged the technology via a blockchain-based supply chain to prove the

vaccine's effectiveness. This particular use case is run on the Hedera hash graph, a DLT, which uses a different mathematical system to Bitcoin and Ethereum, called directed acyclic graph (DAG). Hedera provides an alternative through its low-cost and high-speed (Computerworld). Hedera is further managed by a council, which includes Deutsche Telekom, Boeing, DLA, Google, IBM, Dentons, and many others.

Furthermore, the World Economic Forum highlighted the need to leverage blockchain technology to radically transform global supply chains, which currently carry critical gaps and weaknesses. However, for the technology to disrupt and transform, WEF argues it must be in tandem with a broader digitization strategy when deployed are inclusive and interoperable. Consequent to the topicality of blockchain, capabilities for the technology enhancement of supply chain management has steadily emerged as a salient phenomenon and localised area of research. However, current literature reveals there stand a limited number of blockchain use cases which support circular economies within the fashion and apparel industry (Heim and Hopper, 2021).

To understand the need for a blockchain anti-counterfeiting solution, supply chains must be examined. Global supply chains are composed of separate and independent businesses, where the bottom line is the sale of the end-product (Casey and Vigna, 2017). Issues surrounding traceability and transparency are problematic in global supply chains which work on 'just in time' principles of supply and distribution i.e. they change/mutate rapidly. Given that blockchains' features, which include real-time tracking and time stamping, it presents an ideal solution to combat issues surrounding traceability.

According to Casey and Vigna (2017: 144) ‘the benefits of traceability and automation don’t just pertain to things: blockchains could also keep human beings in check along supply chains. Staff and supervisors from different vendors could be assigned special, cryptographic permissions, which, when placed into a blockchain environment, would appear as unique, traceable identifiers’. However, one should be wary about this Orwellian world of decentralised software and surveillance capitalism (Zuboff, 2018). Casey and Vigna (2017), like many exponents in the field have veered toward blockchain evangelism, creating an almost cult-like appeal to the technology.

Empirical evidence shows that blockchain technology creates disruptive impact in supply chain operations (Lim, et al., 2021). Technical infrastructure and security features ensures the blockchain is protected at three levels: 1) decentralisation allows for immutable data or tamper evidence, 2) the cryptographic function guarantees data security and 3) the consensus algorithm protects the network to foster good behaviour and ensures the validity of the chain (Schmidt & Wagner, 2019; Lim et al., 2021; Lall, 2020; Lu, 2018; Singh & Kim, 2018). In a study on blockchain supply chain literature, which examined 106 publications, the authors found that research on blockchain-based supply chains is steadily growing with strong interest and attention.

Furthermore, CB Insights in January 2022 published its latest market report which discussed the growth of the \$25Bn Blockchain industry for corporates, start-ups, VCs, DeFi, NFTs and cryptocurrency. According to the statistical analysis found in the report, funding for the technology grew >700% in the last 12 months with 2021 seeing the

creation of forty-seven (47) Blockchain ‘unicorns’ (companies with a valuation of \$1Bn or more) illustrating a growth in the adoption and investment in Blockchain technology in unprecedented fashion.

CHAPTER SIX

BLOCK-TECH ENHANCING SUPPLY CHAINS

Enhancing supply chains through Block-tech

In 2016, the market for supply chains was valued at \$40 trillion (Parker, 2016).

Jabbari and Kaminsky (2018) argue that blockchain does have some potential to impact supply chains in the short term, yet many of the potential blockchain-based supply chains impact will require significant research advances. They identify four categories of issues that researchers should heed for many of the proposed use cases to be feasible. The authors agree that if these issues are addressed, that the potential for blockchain-based supply chains will be enormous (Ibid). It can be furthered that there exist certain organizational inefficiencies within supply chains today.

Due to the number of intermediaries and separate entities along the product's journey from producer to end-consumer, there is a lack of transparency: 'little knowledge of the product origins, processing or shipping journey' (Van Kralingen, 2016; Azzi et al., 2019). The greatest dilemma global supply chains face is overcoming issues in the traceability and data management systems. The lack of transparency within supply chains is argued to reside in the centralised nature of the management of information. This centralised management system poses numerous threats to data manipulation and tampering, threats to data integrity, ensuant in corruption and fraud (Abeyratne & Monfared, 2016).

In a late modern world, the conscious consumer and ‘woke’ culture demand transparency predicated on a trusted ecosystem between producers and consumers (Thomas, 2019).

Chanel President, Bruno Pavlovsky in a recent address of plans to ‘future-proof’ Chanel supply chains, said *“Our industry is undergoing a complete transformation- it’s not just about using the best quality materials, but also about the **provenance**, the **traceability** and the conditions in which they are produced”* (BoF, 2021). Calls for more transparent supply chains and better sourcing practices require systemic change to achieve traceability and immutable data collection and security. Blockchain technology has been touted as the answer to these calls. The integration of a blockchain to supply chain operations produces a more ‘transparent, authentic and trustworthy’ chain (Laaper, Fitzgerald, Quasney, Yeh, & Basir, 2017; Azzi et al., 2019). Many studies have recently emerged which identify and conclude that blockchain-based supply chains can and will create a more reliable and authentic ecosystem (Azzi et al., 2019; Agrawal and Chen, 2021; Lim, Tseng et al., 2021; Welfare, 2019; Casey and Vigna, 2017; Tapscott and Tapscott, 2016), Kshetri, 2021; Azizi et al., 2021, Varvatan, 2021; Yanling, Eleftherios, Weidong, 2020).

Blockchain’s unique technical infrastructure, it is argued, offers a tamper-proof, immutable record of transactions - in a word a high-fidelity accounting system. At the core of blockchain are three integral concepts: consensus mechanisms, smart contracts (Szabo) and cryptography (Gupta, 2018; Tien Tuan Anh et al., 2017; Azzi et al., 2019). The entire supply chain inputs data, which are collected through varying technologies,

and validated before becoming a permanent record on the blockchain (Ramamurthy, 2016; Zyskind et al., 2015).

A literature review of empirical evidence, which examines blockchain-based supply chains, has been undertaken and will seek to inform the research of the value added and its role as an anti-counterfeiting technology. Della Valle and Oliver (2021) offer a comprehensive account of studies linked to blockchain-based supply chain management and thereby inform the methodological research component. An examination of grey literature found in reports, white papers, press releases, feasibility studies and podcasts have been undertaken: Distributed Ledger Technologies for Public Good: Leadership, collaboration and Innovation edited by Lord Holmes of Richmond MBE (2020), Distributed Ledger Technology in the Supply Chain edited by the UCL Centre of Blockchain Technologies (2019), Blockchain Industry in the UK Landscape Overview 2021: Companies, Investors, Influencers and Trends, McKinsey Report: The State of Fashion 2022: *Global Gains Mask Recovery Pains* and CBInsights Report: The Best of Blockchain 2021.

The study recognizes the potential impact of data-driven algorithm technologies on complex, interorganizational systems symptomatic of supply chain systems. The introduction of a blockchain has been determined to increase competitive advantage and reduce the pressures of cross-border operations; ‘blockchain initiatives are characterised by fading boundaries between the different actors that are involved’ (Beck and Muller-Bloch, 2017: 5397). Although Koh et al., (2019) contend further research is required in

multimodal transport and logistics sectors, blockchain has shown promise as a tool for the enhancement of the value chain in providing overall system efficiency and thus is defined as a motivator for the digitization of supply chains (Saber et al., 2019; Sarkis et al., 2020). The integration of blockchain technology in supply chain management as a tool for data management is assumed to enhance the external and internal SCM (Hilary and Babich, 2020; Koh et al., 2020; Della Valle and Oliver, 2021).

Further, the integral role smart contracts play in creating this ecosystem, which affects disintermediation, will be furthered. As such, portent will be paid to Ethereum blockchain protocol, the leader in smart contract blockchain applications today. In addition, preliminary findings suggest the application of non-fungible tokens will play a vital role in solving issues of digital ownership, enabling fractionalization; thus, adding further value to the blockchain ecosystem.

Subramanian et al., (2020) identify motivations and challenges surrounding the technology. Numerous entrants are exploring and experimenting within the blockchain ecosystem. It is an industry ripe for the taking. Within the last year, a surge in the number of retailers registering interest in the adoption of the technology has occurred. Alibaba announced its adoption of the technology for its subsidiary companies to track cross-border shipments effectively. Blockchain adoption enables product provenance, fraud prevention, management of loyalty points (rewards), compliant consumer data, cryptocurrency payment compatibility (Ibid). Benefits identified provided end-to-end supply chain visibility, anti-counterfeiting via a 'digital passport', quick product recall,

certifying reliable suppliers and crypto payment facilitation (Ibid). Target's adoption of a blockchain solution for retail supply chain based on Hyperledger Sawtooth, called ConsenSource, created efficiency seen in a reduction of time spent on processing documents from hours to minutes (Ibid). Hence, the proposition of value being created and extracted, as the time spent on document processing can be redirected and repurposed. Furthermore, the authors proposed a criterion for determining blockchain implementation, based on a technological, organisational and environmental framework. Adding to this, the authors concur the factors involved in blockchain applications centre around security, safety, traceability and transparency. This assertion validates the research aim to identify blockchain solutions toward traceable and transparent supply chains and in addition, it was proven a feature of blockchain is anti-counterfeiting.

An early exploratory study into reduction of counterfeit products using blockchain (Uhlmann, 2017) which examined general approaches to counterfeit reduction and blockchain-based anti-counterfeit solutions. The use case examined BlockVerify, a blockchain-based anti-counterfeiting solution, based in London, UK; Chronicled a blockchain solution, initially with a goal to eliminate counterfeit sneakers, but expanded to link physical goods to blockchain; Everledger, a London based startup with an anti-fraud and diamond focus; Provenance, a London based traceability solution to track product origins, Skuchain (anti-counterfeit solution for trade and supply chain finance), VeChain and Verisart, an art and collectible digital catalogue enabling digital history and efficient trading sans intermediary agents.

Uhlmann (2017) proposes three general technologies in counterfeit reduction: Overt and covert technologies, track, and trace. However, such technologies are not a silver bullet. The previous examination of counterfeiting has illuminated the factors and measures needed to eliminate counterfeiting. The findings affirmed BlockVerify, Chronicled, VeChain and Provenance all support multiple products. Provenance was introduced to the research via preliminary exploration of the ecosystem. A female-led organisation, Provenance CEO Jessi Baker, an innovator in the space, saw the potential for radical transparency via the technology. Provenance has been identified within this research as a successful use case due to their pilot projects for food supply chains, along with other sectors. Furthermore, it has been observed that within the blockchain ecosystem, there exists an increase in female-led organisations and start-ups. Provenance (Jessi Baker) and Everledger (Leanne Kemp) are both female led blockchain solution providers, among many others. Uhlmann (2017) determined prerequisites for a blockchain-based anti-counterfeiting solution. Blockchain is a referencing system, and as such is insufficient on its own in combating counterfeiting. However, if accompanied by existing technologies; RFID, IoT, it can prove a preventative measure to counterfeiting. Blockchains' role in reducing counterfeits is further assessed as reliant due to immutability and transparency created. Once it's on the ledger, it stays on the ledger.

Azzi et al., (2019) examine the power of a blockchain-based supply chain through an examination of two use cases: Ambrosus and Modum, who merge IoT, blockchain technology and real-time sensors to trace and transmit products' information throughout

the manufacturing process. Both startups specialise in pharmaceutical supply chains, while Ambrosus specialises additionally in food supply chain.

Within the Ambrosus network, track and trace is achieved through public-private key cryptography. The sensors and QR codes sign the collected data before sending it to the gateway using RFID technology, before making its way to blockchain, where the data is verified, time-stamped and will remain (Kirejczyk et al., 2017; Azzi et al., 2019). Through a tokenization model, an Amber token is introduced within the network; as a security token bonded to the product until an expiration date, e.g. purchase (Azzi et al., 2019). The customer is then able to download data to verify the authenticity of said product, thus producing transparency and proving traceability. Ambrosus network is built on the Ethereum public blockchain, which is problematic as at the time of writing Ethereum has limited capacity for large amounts of data (layer 1 vulnerabilities) and ensues in low transactions per second (Sensing system and integrity of supply chain data, 2017). To combat this, Ambrosus introduced InterPlanetary File System (IPFS), a distributed storage, coupled with the Ethereum blockchain to store sensors' data (Kirejczyk et al., 2017; Azzi et al., 2019).

The Modum network uses a web/mobile app, which allows for reporting, review and installation which data is then input via a quality manager creating a shipment profile enabling monitoring and notification of any issue. A logger, aka Sensor tag is then activated by the logistics team using an NFC plate to connect it with the shipment ID; a smart contract is automated for each shipment. Again, what is evident in these use cases

is that blockchain alone does not create the solution, and through the strategic leveraging and harnessing of existing and new technologies can transparency and traceability for an optimal supply chain achieved; Modum relies on sensor tags, barcodes and QR codes. Similar to Ambrosus, Modum is built on the public blockchain, Ethereum, that enables verification of product temperature (pharma) to comply with GDP regulations (Ibid). Written in solidity, smart contracts run in an Ethereum ether to guarantee compliance required by GDP; and are configured to the temperature logger ID, shipment ID and alarm criteria: if the temperature data registers as GDP non-compliant the sender and receiver are notified to deal with the problem (Azzi et al., 2019). The research undertaken by Azzi et al., found that a selection of suitable track and trace devices is contingent on the product; e.g. vaccines, meat which require environmental monitoring sensors (Bocek et al., 2017, Sensing system and integrity of supply chain data, 2017; Azzi et al., 2019). Hence it can be determined that blockchains integrated with sensor tags, RFID and NFC, can provide tamper-proof products. Other substantial findings from this study have shed light on the use of RFID, NFC and BLE. Although they provide low power consumption and low setup time, RFID is more suitable for transfer of large data opposed to NFC, which has a limited data rate.

The proven benefits of blockchain integration illustrate transparency, reliability, and integrity of product data within the product cycle along with tracking device authenticity; it builds high-trust relations. However, limitations with the technology were found within the Ethereum public blockchain which at the time of writing, has a limited capacity in handling large amounts of data, which is supported via IPFS. Furthermore, the authors

conclude blockchain systems are not ready for mass usage (Anh, 2017; Azzi et al., 2019). In addition, the authors identify Ethereum problematic due to the adopted consensus protocol (PoW) whereas Hyperledger (IBM) harnesses Practical Byzantine Fault Tolerance (PBFT) (Ibid), and Parity for scalability. Unlike Parity, Hyperledger and Ethereum's performance (TPS) is affected by the number of used servers, which can result in the network crashing. Risks of security breaches and hacks find Ethereum and Parity vulnerable to attack due to Proof-of-Work capacity to create a 'fork' - leaving the network vulnerable to double spend attack (Ibid). On the other hand, Hyperledger is considered safe without the issue of 'forking'. At the time of writing, Ethereum has since this study, adopted the Proof-of-Stake consensus protocol which it adds will eliminate vulnerabilities previously found with PoW. As the space is continuously and rapidly evolving, more proof-of-concepts and tinkering around with the technology will enable a better understanding of how to improve the technology to drive growth alongside competitive forces. Consideration must be paid to the most suitable blockchain based on different properties, such as 'decentralised control, immutability, creation and movement of digital assets and capabilities; throughput, latency, capacity and scalability' (Ibid).

The importance of the consensus protocol is fundamental to the security of the blockchain; 'a bad mechanism can compromise the data records on the blockchain; if the consensus mechanism fails the ensuing issues include forking, consensus failure, dominance and cheating' (Baliga, 2017; Azzi et al., 2019: 12). Public blockchains are decentralised and open-source which means anyone can view the ledger on the network; which problematizes sensitive data. The study found Hyperledger Sawtooth proved better

results in terms of latency, network traffic and CPU load (more transactions per second); while Ethereum proved more advantageous with scalability, reliability, and system maturity allowing for many users in configuring the ecosystem (Pincheira Caro, Salek Ali, Vecchio, and Giaffreda, 2018). Following a comparison of blockchains it was found that Hyperledger fabric, a permissioned blockchain is ideal for cross-industry collaboration, while hybrid blockchains are identified as suitable for cross-border currency exchange and settlements (Welfare, 2019: 41).

Initial findings suggest the technology has fulfilled the objective to create more transparent and verifiable end-to-end tracking, leading to an **increase in trust** along the chain, improved visibility, product compliance, fraud elimination, counterfeit reduction, provable chain-of-custody and dramatically improved product recall time (Azzi et al., 2019). To prove digitally transformative within enterprise solutions, it is fundamental to strategically assess the best blockchain to achieve intended results. “A fusion between IT strategy and business strategy that creates a fundamental driver of business value creation and capture”, digital transformation is imperative in a data-driven economy and shift to digitization (Bharadwaj et al., 2013). Hence, blockchain adoption and implementation will prove integral to this paradigm shift through the enhancement of digital supply chains defined as “an intelligent best-fit technological system based on the capability of massive data disposal and excellent cooperation and communication for digital hardware, software, and networks to support and synchronise interaction between organisations by rendering services more **valuable, accessible, and affordable** with consistent, agile and effective outcomes” (Büyükożkan et al., 2018).

Traceability

“The ability to identify and trace the history, distribution, location and application of products, parts, and materials, to ensure the reliability of sustainability claims, in the areas of human rights, labour, the environment and anti-corruption” as defined by the United Nations Global Business for Social Responsibility.

The selected study proposed a blockchain-based traceability framework for supply chains of textiles within the garment industry (Agrawal and Chen, 2021). This deliberation was made to assess any changes and/or improvements within the blockchain ecosystem, and to identify whether previous vulnerabilities and weaknesses exist. In ascertaining the value created from harnessing the technology to ensure transparent and traceable supply chains, this study will endeavour to reveal.

To catalyse ethical buying practices, it is imperative to show product authenticity. The proposed blockchain-based traceability framework used the example of an organic cotton supply chain using blockchain with configured smart contract and transaction rules. The study tested on two parameters; the proposed framework creates a **technology-based trust** among the supply chain network, where the blockchain stores and authenticates supply chain transactions. Second, the proposed system would create a ‘unique opportunity, flexibility, and authority to all partners to trace-back their supply network and create a transparent and sustainable supply chain’ (Agrawal and Chen, 2021).

The ability to trace transactions from point of origin is an essential and core feature of the technology under examination (Jansson and Petersen, 2017). Blockchain-based traceability ensures secured data sharing, enables product quality monitoring/control, operation monitoring/control, real-time data acquisition, transparency, and visibility throughout the supply chain (Azzi et al., 2019; Frizzo-Barker et al., 2020; Agarwal and Chen, 2021). The authors identify the issues in modern supply chains as building trust, ‘the role of third party supply chain auditors in documentation and reporting the violation of codes-of-conduct are often questions and thus remain untrustworthy’ (Short, Toffel, & Hugill, 2016; Agarwal and Chen 2021). In order to determine provenance of raw materials and product authenticity, which is identified as ‘difficult’ to achieve in modern supply chains (Kumar et al., 2017), a blockchain-based supply chain is introduced as a solution.

The case study of organic cotton within the textile and garment industry is a salient indicator of the value created by the technology. Textile and garment supply chains commence with a fibre producer; cotton producer or synthetic-fabric producer (rayon, polyester), the fibres are processed into yarn via yarn-manufacturing units, using a spinning process before conversion into fabric via weaving, knitting or nonwoven process. The generated fabric will proceed to apparel manufacturing (stitching) industries where the product is thus generated. The authors recognize that modern supply chains are complex networks with multiple partners, consequently it consists of sub-suppliers and contractors involved in the supply chain of product enhancement (e.g. buttons, lace) and processing services (e.g. chemical treatments, embroideries). Fashion brands are

decision-makers of upstream partners and supply chain configurations, contingent on several variables, including reduction of manufacturing costs, suppliers' history and consumer market (Kumar et al., 2016; Kumar et al., 2017; Agarwal and Chen, 2021).

Mitigating the risk previously described the study determined four value fields: 1) *traceability ID*: unique digital identifiers, which fosters fractional ownership, 2) *public key cryptography* to identify supply chain partners, 3) *transaction signature* which combines private key and unique ID to verify the transaction and 4) *asset value* represents the amount of assets traded on the supply chain. Mariana Mazzucato's *The Value of Everything*, discusses creating and extracting digital value. According to Mazzucato (2018: 220) there is a major consequence of the dynamic of innovation is about how value is *created, measured and extracted*. Mazzucato (2018) relies on classical economic theory to analyse new digital markets. For Mazzucato (2018: 220) a distinction occurs between 'productive' labour, which leads to an increase in the value of the product and 'unproductive' labour, which does not. Governance and ownership of data emerged as problematic with big data firms (Cambridge Analytica, Facebook). Moreover, Mazzucato (ibid) identifies a paradoxical result: 'unproductive advertising activities are counted as a net contribution of online giants to national income while the more valuable services that they provide to users are not'.

The smart contract configuration uses mass balancing; tracking and recording the mass flow on the blockchain; and is computed as "Input = Output + Accumulation. The proposed framework tested its performance at different nonce difficulty levels while

scaling up the block size (Agarwal & Chen, 2021). The study found potential in sector-specific smart contract formulation and the role of certification companies in adhering to compliance standards, which is achieved via blockchain technology.

Another study provided insightful evidence through a comprehensive literature review of blockchain application in supply chains, which produced a detailed analysis of themes, methodologies and industries (Lim and Tseng, 2021). To determine the value of blockchain integration in supply chain management (SCM), the authors found scholarly undertakings in exploring the potential of blockchain-based supply chains (Wang et al., 2019), which explored four areas: *extended visibility and traceability*, *supply chain digitisation* and *disintermediation*, *improved data security* and *smart contracts*. Philipp et al. (2019) revealed smart contracts applications in multinational and multi-mode supply chains through interviews and case study research. The study revealed blockchain-based food supply chain research as the most researched stream (Antonucci et al., 2019, Chen et al., 2020, Duan et al., 2020, Feng et al., 2020, Feng et al., 2020, Zhao et al., 2019), two articles researched the transportation sector (Astarita et al., 2020, Pournader et al., 2020), and the remaining four articles did not apply to a specific background. These comprised of analyses pertaining to value, current trends and future opportunities from the perspective of the impact of blockchain on supply chains (Gurtu and Johny, 2019, Queiroz et al., 2019, Wamba and Queiroz, 2020, Wang et al., 2019, Wang et al., 2019, Wang et al., 2019). The research sought to determine the value of blockchain-based supply chains, the most widely attracted supply chain theme, what research methodologies are developed for blockchain integration in supply chains, and lastly, to

identify the industries involved in blockchain-based supply chains (Lim and Tseng, 2021). Through descriptive and content analysis conducted on 106 articles from 31 countries, blockchains' national strategic importance in China is determined supported by the creation of a Blockchain Industry (China Blockchain Technology and Industrial Development Forum, 2016). This industry creation would position China as an innovative hub for the technology fostering a blockchain ecosystem. From a geopolitical standpoint, this weaponization of the technology sees similarities with the Schumpeterian paradigm. When William Lee presented his invention, a machine to knit stockings, to Queen Elizabeth I; the Queen rejected his hope for a patent and said, "Consider what thy invention could do to my poor subjects. It would assuredly bring them ruin by depriving them of employment, thus making them beggars", history reveals the mechanical loom did not create *technological unemployment* and proved economic growth per capita (Aghion et al., 2021, Keynes, 1930). Ferguson (2019), considered the greatest historian in England, an avid Keynesian furthers this idea of Chimerica and fears of a rising China with centralised interests and surveillance systems.

The measured supply chain themes included 'impact', 'function', 'configuration'; which uncovered sub-themes such as 'information sharing' and 'trust system'. A review of 63 articles yielded four aspects of interest with the technology: product (35 articles), process (11 articles), operation (9 articles) and sustainability (8 articles (Lim and Tseng, 2021). Most promising was the revelation of the sub-theme, 'Traceability' receiving the most attention. Kamble et al., (2020) determine thirteen enablers of blockchain applications within the Agri-supply chain, traceability was identified as significant, followed by

auditability, immutability, and provenance; this is concurrent with the research view that traceability is the greatest value of blockchain-based supply chains. Further findings uncovered considerations of three dimensions of blockchain-based sustainable supply chains; economy, society and environment were insufficient. An interesting finding was the theme ‘configuration’ focused on the simultaneous application of blockchain technology and emerging technologies (IoT and AI), which emerged (Bencic et al., 2019, Fernandez-Carames et al., 2019, Lezoche et al., 2020, Mazzei et al., 2020, Mondal et al., 2019, Rejeb et al., 2019, Zhang et al., 2020). Important to note, in reference to classification Basalla et al., (2021) have empirically determined eight essential blockchain features: *traceability* (Jansson and Petersen, 2017), *immutability* (Beck et al., 2017), *decentralization* (Atzori, 2015), *security* (Abeyratne, 2016), *reduce intermediaries*, *faster and cheaper transactions* (Alharby and Van, 2017; Voshmgir, 216), *tokenization of assets* (Lemieux, 2017) , *use of crypto tokens for transactions* (Nakamoto, 2008), *creating trust in a mutually used system among unknown parts* (The Economist, 2015).

Thirty-eight articles, studies, researched proof-of-concept applications of the technology. Furthermore, thirty-three articles examined case studies of applications of blockchain which affirms the view that the technology is a practical tool for supply chain collaboration and building trust thereby enhancing performance. In terms of identified industry interest within the research stream; manufacturing supply chains and trade sectors have received most attention. Hence it was concluded that blockchain was

identified as helpful in solving issues in the sectors due to intrinsic attributes: shareability, security and smart capabilities.

Change et al., (2020) interesting to note, highlighted key obstacles for blockchain implementation in the maritime industry, transportation industry, food, pharmaceuticals, and manufacturing supply chains. Furthermore, the study uncovered *configuration* as ignored themes in supply chains due to three reasons (Duan et al., 2020), 1) handling large quantity of data via IoT devices problematizes secure data storage, 2) delay in transmission process and 3) the blockchain network security and privacy due to vulnerability of IoT (Zhang et al., 2020). Calls for strengthened research on the technology, which consider two understudied areas: existing systems integrated with blockchain technology, enterprise blockchains and the need for unified technical standards. It was concluded that blockchain does add value to supply chains through a number of areas, which have been identified as consistent themes and findings (Lim and Tseng, 2021). Further adoption challenges to the technology have been identified as inefficient technological design, security issues, lack of skilled professionals, criminal connection, regulation, blockchains can be slow, low scalability, difficulties with implementation and high energy consumption (Blockchain Report, 2021).

A recent study showed current developments and key issues of blockchain integration in SCM (Kshetri, 2021). It must be said that this author has already produced two books within the space focused on blockchain integration of modern supply chains (Kshetri, 2020; Kshetri, 2021). Furthermore, key emphases on aspects of blockchain revealed;

smart contracts, tokenization and traceability. Forbes Annual Blockchain 50 list published in February 2020 identified six out of 50 companies were developing SCM-use cases, while the biggest use case showed fifteen companies out of 50 specialising in traceability and provenance (Kshetri, 2021; Forbes 2020). Blockchain-based traceability solution providers included IBM, Nestle, Foxconn, Honeywell, Walmart, Amazon, BMW, and Mastercard (Forbes, 2020 In Kshetri, 2021).

Blockchain projects, which have been deployed to facilitate international trade, are increasing; Maersk and IBM in 2018 deployed a blockchain-based shipping solution TradeLens (<https://www.tradelens.com/>). As of March 2020, the TradeLens network comprised 150 members, who represent over half of the world's container cargo capacity and five of the world's top six ocean carriers, which by March 2020, had processed 15 million containers (Kshetri, 2021). This monopolisation and incentive to compete through creative destructive forces is worthy of notice. It was further found that blockchains' value proposition is greater for goods, which require high information costs, e.g. luxury goods, pharmaceuticals and drugs. The Port of Rotterdam and the Port of Antwerp have recently integrated blockchain for supply chain solutions, reinforcing proof that the technology will improve and overcome existing supply chain stumbling blocks.

A study of Cointelegraph and VeChain revealed by 2027 that blockchain will trace US\$300 billion worth of food products (Brown, 2020 Blockchain characteristics have thus maintained the following facets and assert as key enablers of value: decentralisation, immutability and cryptography-based authentication (Kshetri, 2018). At the time of this research and in keeping with Kshetri (2021) findings the following three types of

blockchain exist: permissionless (public), permissioned (private), and hybrid. VeChain's public blockchain has been identified as suitable for SCM, which relies on PoA consensus. In November 2019, VeChain inked an agreement with logistics, SC and import solutions provider ASI Group to implement cross-continental logistics and trading solutions using the VeChain Thor Blockchain.

Hyperledger fabric was found performed better than popular cryptocurrencies and public blockchain in relation to measurement of speed: transactions per second (Kshetri, 2021). A consortium or hybrid blockchain, such as R3 open-source blockchain platform Corda, as of August 2020 had over 300 participants from various sectors. These developments offer encouragement that the nascent industry and technology is maturing, with continued innovation and drivers of competition should ensure economic growth and increased adoption. Smart contract vulnerabilities pertain to how the smart contracts are written and executed (e.g. in Solidity language which is what is used for Ethereum). Smart contract applications on a blockchain were found to address shortcomings in trust, lack of transparency and centralization. The bitcoin blockchain is found to be insufficient for smart contract implementation (Kshetri, 2021).

Noteworthy recent developments were found in non-fungible tokens (NFTs), security tokens, tokenization and tradability and traceability (Kshetri, 2021). To start with NFTs; the digital representation of an asset that is scarce (Blockchainhubnet, 2018), powered by blockchains, is a tool in fighting counterfeiting. NFTs according to Kshetri (2021) possess three characteristics: uniqueness, rarity, and indivisibility. Enabled via the

standard, ERC-721 on Ethereum, high-value assets, such as Icecap, which assigns diamonds NFT tokens, each unique, of which can be traded on crypto marketplaces such as OpenSea.io (Globe News Wire, 2020). NFTs will be further examined later in this study. Security tokens apply to non-fungible tokens and fungible tokens, as registered securities within a jurisdiction. These tokens operate as investment contracts and represent total or fractional legal ownership in an asset such as real estate asset, artwork, etc. (Ksherti, 2021), as such regulations are heavily scrutinised in relation to utility tokens. Blockchain-based tokenization enables supply chain Tradeability which also can involve issuing a STO (security token) that represents a physical or digital asset (Deloitte, 2018). Tradeability occurs as tokens can transfer ownership without moving the physical asset. Finally, the lack of traceability due to data silos in the modern supply chain is of vital concern. Recent evidence shows consumers are willing to pay more for transparent supply chains and remain brand loyal (IBM, 2020; SaaS, 2016). Inherent features of immutability and decentralisation, it is an essential tool to improve and create transparent supply chains (Kim and Laskowski, 2018). Furthermore, it was found that advancements in interoperability of blockchain networks circumvent existing challenges. Network-of-networks model is identified as the most efficient and scalable way to build interoperability (C.R.W. de Meijer, Finextra, 2020). Everledger, and Circulor are collaborating in order to bolster interoperability of data interchange; both rely on Oracle's blockchain platform (OBP), which is based on Hyperledger Fabric. Oracle offers an enterprise solution through Blockchain as a Service (BaaS), where OBP installs, manages, and maintains the blockchain platform for enterprises (Acharya, 2019).

During what some are labelling Fourth Industrial Revolution technologies, blockchain has the transformation potential of adding significant value as well as ‘complementary and synergistic effects’ by combining blockchain with emerging technologies (Kshetri, 2021). The emergence of a digital twin; “a virtual representation of an object, a service process, a product, or anything else that can be digitised”, mirrors its physical twin and as such provides unprecedented real-time view with what is happening with physical assets, e.g. equipment (Miskinis, 2018). It is argued that the creation of a digital twin on supply chains can allow firms to achieve traceability and transparency of every operation conducted on the supply chain (Mandolla, Petruzzelli, Percoco, Urbinati, 2019). Lukso, a leading blockchain platform for the luxury industry leverages digital twins to create digital replicas of physical goods, such as a pair of Italian leather heels or a vicuna jacket; to show provenance and prove ownership. This allows luxury brands the opportunity to display their collections in the Metaverse and enhance their reputations in the digital realm (Behrens, A. Decrypt, 2020). In 2020, Helsinki Fashion Week partnered with Lukso to transfer ownership; viewers were allowed to purchase digital garments from the shows and have their images ‘dressed’ in them (McDowell, M. Vogue Business, 2020).

CHAPTER SEVEN

REGULATING THE HETEROTOPIA

“The lawgiver is the engineer who invents the machine” **Jean-Jacques Rousseau,**
The Social Contract, (1762; 2004)

Non-Fungible Tokens

“NFTs are just an extension of how you can issue your brand into the digital sphere”
- Mason Nystrom, a crypto research analyst (BoF).

NFTs are a technological application using block-tech which may be used to relate a physical to digital commodity or asset, enabling new potentials within digital worlds, such as the Metaverse and Web3.0. For instance, a consumer may purchase an NFT, typically collector status with limited supply, which may relate to a physical good or experience; allowing the user/consumer a sort of virtual passport into the digital realms. Current iterations of NFTs within the luxury goods sectors are digital identities and digital passports which connects for instance a Dolce and Gabbana crown to a digital version digitally correspondent to the physical commodity. The digital reproduction of the physical is enabled through the creation of a non-fungible token.

Non-fungible tokens require a blockchain, without which the application would be inadequate. Non-fungible tokens solve issues of digital ownership, and can be considered

a luxury good in its attributes of scarcity and uniqueness. NFTs are, in addition, transparent claims of title against property, both tangible and intangible (CityAM). NFTs allow partial purchasing of property equity and the attendant rights, such as boundary, air, view, mineral, water rights; previously bundled as individual rights and traded as individual titles to be used in daily trade and commerce; hence, it opens a Pandora box of questions regarding rights, previously unseen.

NFTs are perceived as digital certificates of authenticity and ownership of both digital and physical goods. Core to the concept is the differentiation from fungible tokens, bitcoin and other digital assets. Something fungible is interchangeable, can be easily replaced with something that fulfils an identical function, like money. Non-fungibility, thus, is not interchangeable, such as an email address or domain name. Each NFT is unique and differs in makeup and value from other NFTs. NFTs rely on distributed ledger technology, such as a blockchain which serves as a method of authentication for buyers of these unique items. From a technical structural point, NFTs comprise blockchain addresses and transactions and metadata, which describe properties of a NFT. NFTs solve digital ownership issues, it cannot be replicated, is unique and scarce. NFTs can be ‘minted’, bought and sold; and are now considered closer to digital securities.

Early iterations involved coloured coins circa 2012, due to limitations of the bitcoin blockchain network. Due to the introduction of the ERC-721 standard, on Ethereum, it allowed the capability to configure smart contracts, which led to trials and experiments with the application. Early NFTs included digital collectibles like Crypto Kitties, today

the Bored Ape Yacht Club; which uses fractional ownership on assets and CRYPTOPUNKS have injected a surge of attention into programmable; making this year, the year of NFTs. Interesting to note that Google trend analytics found no interest in NFTs until around January 2021 to current peak interest (Khuntia and Pattanayak, 2018; Dowling, 2021).

NFTs enable new democratic structures of financing and disintermediation. NFTs main properties include verifiable ownership; NFTs are *traceable, rare, secure, interoperable (standards), peer-to-peer, programmable* and *unique*. NFTs are starting to gain financial utility through fractionalization and representation as tokens. Fractional ownership and fractionalization foster financial inclusivity. Utilising blockchain-based smart contracts, NFTs offer a new distributed media ownership model sans intermediary, enabling digital asset creators to earn royalties and all profit directly and in full. For luxury brands, NFTs provide an unprecedented opportunity to generate additional revenue and interact with fans directly to create exclusive experiences (Blockchain Report, 2021).

The research sees enormous potential for the introduction of NFTs within the luxury sector. Fashion and luxury brands have signalled intense interest in the technology. Within the United Kingdom, NFTs have taken centre stage with renowned UK auction houses Sotheby's, Christie's and Bonhams have all participated with NFT art within the last year. Gucci, in collaboration with Christie's auction house, presented an NFT video (Aria) on its AW21 collection, later sold for USD\$25k in June 2021; Louis Vuitton launched 'Louis: The Game' in honour of its 200th birthday; Balenciaga partnered with

Fortnite to produce skins for players as NFTs; Burberry minted NFTs in Mythical Games and Dolce & Gabbana recently produced Collezione Genesi – nine piece collection of tokenized fashion times (Barbaglio, 2021). Out of this nine-piece collection, was The Doge Crown (Edition 1 of 1), which comprised over 100 diamonds and blue sapphires set in 24-Karat yellow gold and palladium, was minted on the Ethereum Layer 1. The owner of the NFT received digital, physical, and experiential benefits as a marketing ploy to increase the aura of the NFT.

There currently exists a feverish experimentation within the NFT space; it is a hot market, since the \$69M sale of Beeple’s “Everydays” NFTs early 2021. Even the London Evening Standard created an NFT of its newspaper. Ben Lewis, author of *The Last Leonardo*, recently minted an NFT of the *Salvator Mundi* (TAN). With more attention on sustainable, transparent, authentic and re-commerce (STAR), businesses see huge potential for NFTs based on the tokens’ intrinsic features. Furthermore, fractional ownership can create financial inclusivity, shifting power away from intermediary agents. Most NFTs do not resemble securities, however if that changes and NFTs classify as digital securities, held subject to securities laws and resale restrictions (Dentons, 2021). Furthermore, NFTs are perceived to become subject to anti-money laundering laws and regulations. With an overall stalling of regulatory bodies and frameworks to keep pace with the fast-paced technology, laws surrounding digital assets etc., will require prompt attention (Penrose Partners, 2021).

Recent benchmarks highlight a 12,901% growth from 2020-21 in NFT trading value, along with a 20,563% growth this year in Secondary sales volume. The metrics show an exponential growth in the secondary sales market, suggesting significant insight into market flow (NonFungible.com). At the time of writing, OpenSea.io marketplace and economic hub for NFTS registered \$3B USD in total volume since starting in early 2021. Other marketplaces for NFTs are Rarible, Solsea, KnownOrigin, MakersPlace and Nifty Gateway, to name a few (Blockchain.com). Industries leveraging the technology include, Art, gaming, collectibles, utility, metaverse and sports (Blockchain.com). This shift toward re-commerce through secondary sales markets is in keeping with earlier observations of this study. To date, a rise in pre-loved markets, re-sales, circularity of fashion goods signal a shift toward ethical buying preferences and conscientious consumption.

Code Is Law

At nineteen years old, Vitalik Buterin, in 2014 unveiled the Ethereum protocol; a smart contract DLT that allowed tokenization (Buterin, 2013; Buterin & Obrist, 2018; Whitaker, 2019). Ethereum, like existing Internet protocols, are written in ‘scripting language’, Solidity for Ethereum, which allows programmability. Programs, such as smart contracts, are run and over time become a ‘standard’ (Bitmark). The ERC-721 standard NFTs function like art from an investment perspective (ERC-721 n.d.). Whitaker (2019: 29) contends despite NFTs nascence, it can be considered a technological innovation ‘upon which large-scale societal structures are built’. She

identifies blockchain to have profound implications for conservators, collectors, museums, artists, historians and wider ecosystems of cultural assets and creative industry (Whitaker, 2019: 29).

Within the art industry, blockchain use cases include provenance and authenticity registries (M. McConaghy, McMullen, Parry & T. McConaghy, 2017; Whitaker, 2019), such a Codex Protocol, based in London. Digital scarcity (O'Dwyer, 2018) for generative art and new media (Bailey 2019; Dash, 2014), fractional equity and shared upside structures (Whitaker & Kraussl, 2018; Whitaker 2018a; Lotti, 2016) and new forms of copyright registry (Evans, 2019; Waugh, 2018; Savelyev, 201; Towse, 2010; Whitaker, 2019). Furthering this, intellectual property structures and the ability for new and specific investment via Ethereum-based smart contract and tokens are created (McKinney, Landy & Wilka, 2018; Gurkaynak, Yulmaz, Yesilaltay & Benji, 2018). The combination of provenance and authentication through blockchain is dependent on the validity of the beginning of the ledger. Diana Wierbicki and Amanda Rottermund (2019) find developing art registries on the blockchain problematic. For instance, the *Salvator Mundi*, has changed ownership numerous times as well as gaps in provenance which led to issues of vetting for error and fraud (Whitaker, 2019). In an examination of pricing behaviour in early-stage markets as seen with NFTs, it found an inefficiency in pricing, albeit an enormous growth in market value (Dowling, 2021). Khuntia and Pattanayak (2018) contend however, that early-stage markets, as with NFTs, are inclined to be motivated by unstable investigations for suitable pricing models and through time may slowly emerge as a proficient market.

To conclude, NFTs and gamification are identified as the first experiment for the technology within the metaverse. The metaverse, not to be confused with the poor rebranding ploy by Facebook, represents a heterotopic space, or as van der Merwe (2021) considers technological heterotopia. An application of Foucault's sex qualifying requirements of a heterotopia yielded that the 'illusory nature of the online environments people inhabit' make it heterotopic by nature (Merwe, 2021:1). With echoes of Huxley and Asimov, this new world in effect would resemble the film *Ready Player One*. In this film, everything is online – we exist in real life (IRL) only to participate and escape to our virtual skins of ourselves. Through VR headsets and assisting devices, the player enters this world built by Jim Halliday. In this heterotopic space, a player/user can create a new avatar and exist in this world to play and earn rewards, which are both tangible and intangible. In this technological heterotopia, your digital representation or virtual self-construction is performative, as it is a projected version of the physical person. The metaverse and Web3.0, re-architecting of the web; provoke salient concerns and questions regarding the nature of online identities and para social relationships. Research on the relationship between social media use and mental health defines the Facebook experience as 'social comparison' (Zuboff, 2019). Considered 'a natural and virtually automatic process that operates outside of awareness – effectively forced upon the individual by his social environment, almost at the moment of exposure, an initial holistic assessment of the similarity between the target and the self is made' (Meyer, 1921 In Zuboff, 2019: 461). Zuboff (2019) is right in her assessment of a new era in the intensity, density and pervasiveness of social comparison processes, particularly for the younger

generations. Furthermore, the research highlights an opportunity for studies in the interrelations between changes in the mediated communication and highly mediatized environment surrounding the blockchain ecosystem and crypto sphere.

Current Regulations and Regulatory Frameworks

“Price stability is the bedrock of economy” – Hon. Jerome Powell; following news that the United States Congress is investigating the construction of a fit-for-purpose regulatory framework. Stable coins may be considered a digital financial instrument which is pegged to a reserve holding, e.g. fiat currency or commodity.

According to Mazzucato (2020) the market should be treated as embedded in ‘rules, norms and contracts affecting organizational behaviour, interactions and institutional designs, which through governmental regulation can help to co-shape markets (Mazzucato, 2020) thereby creating public value with block-tech. Mazzucato held that government can develop competitive industry through catalytic, directional shifts which may steer the economy on a digital transition. However, ‘if government lacks imagination, it will find it more difficult to create public value’ (Ibid, 53-55). Mazzucato offered the example of the space race between the USA and Russia which saw a spill over effect of technological inventions and innovations used to meet societies’ challenges, e.g. CAT scan and MRI technology, to create dynamic capabilities to meet present social challenges. The transition from a market fixing role to a market shaping role positions government as an engine of innovation (Ibid, 124). Along this vein,

Mazzucato argued that risk technologies and risk-taking entrepreneurs should be supported through partnerships and procurement tenders between government and stakeholders.

In ascertaining the merit of block-tech from a geopolitical standpoint, it is useful to examine current approaches to regulating blockchain technology. “During periods of technological shifts, government can play a critical role in co-ordinating industrial efforts and setting standards that create markets” (Mazzucato, 2020: 51). Mazzucato argued that governments seize and stimulate technological leads which may be seen as ‘picking winners’ through governmental support and endorsement of the technology (ibid). In South Korea, during the 1990s the government recognised the potential of high-definition technology (HD) at the same time the electronics industry was transitioning from analogue to digital products. To create the right capabilities to shift to HD the government established a consortium committed to ‘co-developing’ the technology which included the Korea Electronics Institute, the Korea Institute of Technology, Samsung, LG, Hyundai, Daewoo Electronics cushioned with a \$100 million funding to enable the ‘technology transfer and absorption from the USA and Japan’ (ibid: 52). The role governments choose to play or not play in co-developing block-tech offers insight into the treatment of the technology for future R&D.

The United States has begun establishing regulatory frameworks and regulations in place since the emergence of the technology. In January 2018, the Financial Stability Oversight Council formed a crypto currency working group in efforts to study the crypto

marketplace. In 2019, FinCEN, SEC and CFTC released a joint statement on how digital assets will be defined and regulated. The following year in July, the OCC confirmed that national banks and savings associations can provide custody services for crypto.

Additionally, banks can provide crypto-fiat exchanges, transaction settlement, trade execution and tax services. Following this, the first crypto exchange received a state-banking licence; Kraken, could now allow their users to bank between digital assets and national currencies. The OCC in January 2021 granted a national trust bank charter to crypto custodian Anchorage to launch America's first federally chartered digital asset bank.

In Gibraltar, May 2017 saw proposals for a distributed ledger technology (DLT) framework paper published by the HM Government of Gibraltar, Ministry for Commerce and Gibraltar Finance. The following year, the country became the first jurisdiction in the world to introduce legislation around DLT through its DLT framework. This incentivized several blockchain and crypto-related companies to set up shop in Gibraltar where they were awarded a DLT licence granted by the Gibraltar Financial Services Commission (GFSC). During the global pandemic, Gibraltar tweaked and updated its regulations surrounding DLT to include the new Financial Action Task Force rules and then later extended the regulatory guidelines to include a '10th Principle' for digital asset exchanges. To date, Gibraltar has granted Xapo, a digital asset custodian with a banking licence.

Meanwhile, in 2017 the UK assigned a Crypto asset Taskforce, which published a report that outlined the UK's policy and regulatory approach to crypto assets and DLT.

Following this in 2019, the FCA released guidance on what type of crypto asset activity falls within existing FCA regulation. In January 2020, the UK produces a new regulation for crypto asset activity, which requires compliance with the 2017 Money Laundering, Terrorist Financing and Transfer of Funds (Information on the Payer) Regulation along with registration with the FCA. January 2021 the HM Treasury published a consultation and called for evidence for the UK's regulatory approach to crypto assets and stable coins. The interest in stable coins is owed to its nature; a cryptocurrency that is pegged to a fiat currency; and as such has garnered significant interest from nations. The US first experimentation with stable coins is Tether, and is pegged or tethered to the US dollar. Simmel's (1900) 'double bind' reminds the research of the intricate and interwoven relationship of money and political power; and thus, trust in money is affected.

METHODOLOGY

The research undertaken is exploratory stemming from an epistemological framework which seeks to uncover changes in consumptive processes and how these changes are affected through an interrelationship with the technology. Halpin and Monnin (2014) initiated the discussion of philosophical aspects of an emerging technology, the *Internet*. Blockchain technology, has since research conception, proven itself as a leapfrog technology, in both monetary applications and digital asset registries (de Soto, 2003, Swan and de Filippi, 2017).

The advent of the novel technology brings with it a new paradigm in network computing, a progression from simple (mainframe, PC, Internet, Mobile) to smart (Blockchain) networks which facilitate secure, end-to-end, and computationally authenticated transfer of value (Swan and de Filippi, 2017; Sigal, 2011). The Internet provoked sociologists to reimagine and reconsider questions of the self, the relationship between the physical and digital worlds, the individual and society, and the concepts of materiality, embodiment, temporality and spatiality (McLuhan, 1963; Cassells, 2003; Giddens).

Blockchains, similarly, warrant such a degree of philosophical inquiry which considers ontological, epistemological, and axiological inquiry (Swan and de Filippi, 2017). From an ontological perspective, the researcher has examined questions of a holistic nature, characterizations, origination, and implementation. Within an epistemological framework, the research aims to understand the impact of blockchain, the new knowledge

arising and how society can engage and create with the technology. Swan and de Filippi (2017) consider an axiological position in the valorisation of the technology consequent to its popularity and adoption.

Blockchain technology has been shown to exist as a technology and an intangible representation of something different, a ‘moreness’ (Swan and de Filippi, 2017). The words ‘revolutionary’, ‘transformative’, ‘disruptive’ are but a few which are commonly associated with the technology. Hence, extant research and literature offer an epistemological perspective in the comprehension of the technology as a new entrant and occurrence in our world.

The methodological mode of inquiry will be a qualitative ethnographic undertaking utilising interviews and participant observation. Secondary research will be undertaken through empirical analysis of industry reports and podcasts, which have been identified in the space as a resource for knowledge, in a fast-evolving industry. It is worth mentioning, that consequent to Lim, Li, Wang and Tseng (2021) prolific undertaking of the most up to date literature review of blockchain applications in supply chains; the findings have opened further areas of research within the stream of blockchain studies.

Furthermore, the bulk of projects explored are based and built on the Ethereum protocol, which this study has identified as a pioneer and major competitor to other protocols within the blockchain ecosystem. Ethereum, a public blockchain, is interesting as it incorporates the underlying tenets predicated by the Bitcoin white paper; an open-source

decentralised Internet. The re-architecting of the Web has been identified by the research as important within a socio-economic and political framework and which attention must be paid to societal implications from the technology. It is important to add that when this study commenced, pre-Covid-19, preliminary research into counterfeiting and its reduction identified blockchain as a potential anti-counterfeit solution.

In order to fulfil the research aims, the research relies on a mixed methods approach, conducting elite interviews and participant observation, which will be carried out within the City of London. Elite interviews have been selected due to the nascent nature of the technology, which has allowed opportunities for networking within blockchain hubs, such as London. The research has identified London as a major hub for the technology due to regulatory frameworks, added to its role as a financial capital, the adoption of the technology may be imminent.

The proposed methodology highlights a sample of twenty elite interviews as appropriate to fulfil the research objectives which will be varied and provide a thick and ‘rich description’ (Geertz, 1984). Furthermore, it has been determined to split the twenty interviews into two batches of ten, which will be interviewed between 2019 and 2020/21. The rationale is consequent to the emerging, expansive, and nascent nature of the technology, to ascertain progress and results as required by the research. Furthermore, participant observation will be conducted in 2019 for a period of six months, concurrent with the first set of interviews. Empirical qualitative research has uncovered different qualitative methods such as seminars, implementation experience, expert interviews and

case studies are used to procure research insights (Lim et al., 2021). Important to add, pre data collection, the study included focus groups to ascertain consumer shifts and changes in behaviour as evidenced to incite counterfeit purchasing. However, due to the Covid19 pandemic, focus groups had to be eliminated as a methodological mode of inquiry.

Bearing in mind Grix's (2010: 69) caution in guarding against a 'method-led' research, the research pursues a qualitative approach rather than a triangulated method (Grix, 2015: 136), and which seeks to contribute and answer Lim et al., (2021) calls for further theoretical research within the research on blockchain and its application in supply chain management. Furthering Cui's (2019) phenomenological position in the conceptualising of mediatized rituals in a world 'as it appears for interpretation to particular situated social actors, from their point of view within wider relations of interdependence' (Couldry & Hepp, 2018: 5), propels the research exploration to assess and offer critique on mediatized rituals within the blockchain ecosystem.

Key to this research method was the study sought to uncover participants' opinions, points of view, perceptions, and experiences, which a qualitative approach furthered. Implementing a qualitative approach was pivotal as it aims at offering 'an in-depth and interpreted understanding of the social world, by learning about people's social and material circumstances, their experiences, perspectives and histories' (Ritchie, et al., 2003; 2014: 23; Lall, 2015). Conducting qualitative research was preferred to quantitative methods which rely on a pursuit of 'measurable' phenomena', thereby problematizing 'matching concepts with their referents in the social world' (Grix, 2015: 120). Extant

literature and research suggest businesses and governments have leaned toward quantitative results and furthered research undertakings with said approach. In a recent study conducted for the AAPG for Blockchain and AI, the all-party parliamentary group at Westminster, it was found that more Conservative MPs have referenced the technology, than mentions by Labour MPs (Blockchain Report, 2021). The data available regarding blockchain technology is abundant and proliferating at a speed hard to digest. Jonny Fry, editor of Digital Bytes, commented early on, ‘the knowledge is there, it’s just where to begin and once you do it’s an endless rabbit hole’.

In order to examine the complex relationship of supply chains and harnessing blockchain technology to combat counterfeits, podcasts were examined as a secondary mode of research. The researcher selected Anthony Day’s podcast: Blockchain Won’t Save the World, who works at Deloitte, has been instrumental in leading the charge for knowledge dissemination and is identified as a clear voice within the blockchain ecosystem. The research identifies the distinction of qualified informers and evangelists.

Method of Data Collection

From an epistemological perspective, reliance on leveraging multiple methodological resources, for instance diverse methods, sources, researchers, data analysis method provides a level of objectivity and in the mitigation of errors which is reliance on one data source leaves vulnerable (Leech and Onwuegbuzie, 2007; Love et al., 2002; Merriam and Tisdell, 2016; Natow, 2020: 161).

The data collection will combine generated data through qualitative inquiry in the form of twenty semi structured in-depth interviews of entrepreneurs, researchers, experts, and professionals within the space. The deliberation behind this was due to a sample that allowed a wide range of knowledge, experience, and expertise. Furthermore, participant observation within the London blockchain ecosystem will be conducted for a total of twelve months for the research to gain knowledge and insight within the space.

Consequent to the rapidly evolving nature of the space, a submersion into the ecosystem will inform the research. However, it is important to consider the risk of *going native*, as a challenge with ethnography, which the research considers. Furthermore, the researcher is subject to bias and impartiality, afforded through this method, however reflexivity, the research finds, will aid in a more transparent rendering between the researcher and reader. Through the postulation of reality as socially constructed and consequent to the acknowledged positioning of the researcher, there stands no declaration that this study is neutral or objective. As knowledge remains contextually specific, the behaviour of the researcher will affect the participants' responses, the direction of the findings and therefore what is 'known' (Hammond and Kingston, 2014). Nevertheless, reflexivity can offer insight for the researcher to account for their own subjective impositions and for the limitations of the research coupled with 'preferential treatment' of themes and interpretations. Through self-awareness and continual evaluation of the research process itself, this considerably enhances scholarly work. Research becomes more 'trustworthy',

providing a critical contribution to the process of knowledge construction (Morawska, 1997).

Participants for the study included: Blockchainers, bitcoiners, cryptos, academics and professionals. Blockchainers, the research identifies as persons working with the technology with a focus on the technological solutions and various applications.

Bitcoiners, (adapted from Popper, 2015) refers to miners and developers, working within the technical side of boosting and enhancing the technology. Cryptos will refer to persons within the crypto sphere; cryptocurrency traders, decentralised finance (DeFi), with a focus on the crypto markets. Academics researching blockchain technology will be included for a critical perspective within discussions of the technology. Professionals within the sectors of interest to this study: research, fashion, art, and luxury.

Elite interviews

Elite interviews stem from an Anglo-American literary concentration, which is distinct from expert interviews which follow a German tradition (Littig, 2009). From a historical comparative standpoint, Landes' (1969) distinction between the 'pecuniary rationality' of British business and the 'technological rationality' of German enterprise draws on a noteworthy parallel. Whereas elites in this scenario may be 'visible but not accessible' (Thomas, 1995: 4), on the other hand, experts may be both unavailable and inaccessible (Robinson, 2020: 673). According to Robinson (ibid), the social capital accumulated by

an elite can result in a snowballing effect for subsequent interviews, gaining access to otherwise inaccessible opportunities, in addition to the strategic knowledge evident in an increasing ‘technicalisation’ of finance. Hence, from an industry perspective, the importance of such coveted knowledge is elevated.

Elite interviews can often prove a critical data source for studies examining power relationships in the political, economic, and socio-technical spheres. An ‘elite’ may be referred to an individual in possession of a powerful position which has equipped them with a particular knowledge or information retained from a privileged standpoint (Chaban et al., 2013; Goldman and Swayze, 2012; Kezar, 2003; Petkov and Kaoullas, 2016; Stephens, 2007). Hence, elites can provide researchers with valuable insight into a particular industry, technology, or information. Elites often include public personas (Petkov and Kaoullas, 2016), leaders of formal institutions (Harvey, 2011; Parry, 1998, Petkov and Kaoullas, 2016; Scheller, 2015), macroeconomists (Stephens, 2007), education leaders, journalists, and intelligence agents (Davies, 2001; Figenschou, 2010; Bailey et al., 2014). Due to unique position and experience reserved for elite respondents, findings can shed light on data not easily obtained, if at all from other sources (Davies, 2001).

Consequent to the above-mentioned attributes consistent with elite interviews, gaining access can prove quite challenging to obtain. It is essential and paramount to the research for an extensive analysis of documents and profiles to be conducted prior to any interview. According to Harvey (2011 :434) this would demonstrate to respondents that

the researcher is prepared having – ‘done their homework’ and affirms Stephens (2007: 206) point of studying ‘elites’ histories and works as groundwork for the interview. In fact, much research has been done on the merits of ‘studying up’ particularly when it comes to gaining access to elites (Nader, 1972; Empson, 2017; Goldstein, 2002; Harrington, 2017; Rice, 2010). In addition, scholarly attention has been paid to the power dynamics when interviewing elites which involves a complex relationship between various network actors.

Researching elites can be problematic attributed to these power imbalances (Smith, 2006) and the requirement to specify context of the interview (Thuesen, 2011) thus necessitates certain strategies may be employed by the researcher (Harvey, 2011). Therefore, the dilemma arose on how to manage anonymity sans a loss in contextuality (Saunders et al., 2015). Anonymity was determined the best approach when dealing with sensitive data such as trade secrets and inside information. For Lancaster (2017) it’s a balancing act when protecting an interviewee’s confidentiality within the same field where respondents may refer to each other which can lead to reflexively censoring information and omitting aspects that may expose their identity.

Interviews allow for a certain degree of flexibility and enable the pursuit of unexpected lines of enquiry during the interview. This research has identified a semi-structural approach opposed to a structured interview, which is ‘inflexible and not designed to cope with the unexpected’ (Grix, 2010: 128). Furthermore, the rich quality of information

achieved through in-depth interviews is crucial to informing this study of varying and updated industry changes of perceptions and relations.

Semi structured interviews were conducted using a topic guide, allowing the researcher to take a more active role, through probing and follow-up questions (Rubin and Rubin, 2012b: 32). Moreover, the topic guide ensured the ‘right degree of consistency in data collection’ was managed, ‘while allowing the flexibility to pursue the detail that is salient to each participant’ (Ritchie et al., 2003, 2014: 149; Lall, 2015). However, the researcher has to take caution as it can ‘end up imposing the researcher’s framing of the subject matter’ (Ibid). Holding to this the researcher is cognizant of this risk and is hopeful that the use of a topic guide will prove more beneficial than detrimental.

The theoretical framework examined in the literature review informed the various topics covered in the topic guide. The topic guide consisted of open-ended questions, to allow the respondent the flexibility and liberty to respond as they chose (Ritchie et al., 2012: 28). In keeping with ethical standards, each interviewee was asked to sign a consent form (see Appendix I), which confirmed their voluntary participation and informed consent of live recordings to be conducted, to aid in the active listening process, concomitant with oral informed consent.

Sampling Methods

Gaining access for elite interviews can be problematic with several corresponding processes, for instance sampling, interview request/pitching, and interviewing. Therefore, a strategic sampling order was instrumental for selection. The researcher optioned varying methods such as leveraging personal connections (Welch et al., 2002); industry conference events for snowball sampling and situational research (Van Audenhove and Donders, 2019). In conjunction with leveraging the professional networks in London and LinkedIn, which provided a global, cross-industry range and is identified as an important method for interview recruitment due to its filter and search features (Dicce and Ewers, 2020).

Observation

Stemming from an interpretivist perspective, observation allowed the researcher to observe and record interactions, conversations, particular movements. An ethnographic method of inquiry; observation offers a plethora of information for a researcher particularly within anthropological conditions. As the space has been identified to fulfil the conditions of a community, a participant observation method will allow the research to uncover social dynamics surrounding the technology. Within ethnographic research there stand a fundamental difference between classical and focused ethnography, the latter this study adopts. Focused ethnographies, unlike classical are practised in applied fields such as human computer-interaction (HCI) (Bannon and Bødker, 1991; Nardi,

1993; Suchman, 1987) and computer supported cooperative work (CSCW) (Crabtree et al., 2009; Hughes et al., 1994; Shapiro, 1994). Hence, this ethnographic approach aids research examining the implementation of a new technology consequent to its data-intensive feature.

According to Lacey (1976: 65) there exist two types of observation methods: *participant* and *non-participant* observation. Participant observation requires the researcher immersing themselves and becoming a part of the group under observation (Wisker, 2008). According to Lacey (1976), it involved ‘the transfer of the whole person into an imaginative and emotional experience in which the field worker learned to live in and understand the new world’. Further, Shipman (1976) discusses his experiences working for three years observing classes and talking with teachers and students at Hightown Grammar (quoted by Judith Bell, 2005 In Wisker, 2008).

There are perils involved with participant observation, which is contingent on your membership into the group studied. However, if the field worker is an observer given access or the group accepts, then allows for safe observing. As the researcher required no prior training or preparation, this method was suitable once the observer recognized the problems associated with this methodological undertaking. Some situations can become toxic and quite dangerous, depending on the group under observation. As Lee (1995: 1) contends, “researchers often work in settings made dangerous by violent conflict or in situations where interpersonal violence and risk are commonplace”. Furthermore, this can be especially hazardous if observing criminal behaviour or activities. As the research

previously highlighted the need for research within the criminal enterprise of counterfeiting, the researcher affirms that any such undertaking will be at one's own risk and should be deemed dangerous. Moreover, the study opted for a semi-immersed observation method, in which some actors or audience participants were 'part of the secret', achieved through the researchers' acceptance within the space.

This research is grounded in an ethnographic methodological framework encompassing virtual and in-situ participant observation and semi-structured elite interviews supplemented by secondary data analysis. Virtual ethnography is useful to observe online communities, which the technology originates from. Exploring computer-mediated relations and digital network phenomena are best served through the deployment of a combination of offline and online data collection methods, as supported by participant observation and virtual ethnography (Hine 2000, 2015; Kozinets, 2010, 2015). The virtual ethnographic research will be conducted for approximately eight months on the following online channels: Discord and Telegram (online conversational platforms) and WhatsApp groups *Kryptonite Warriors* and *Blockchain Dinner*.

Ethnographic research was conducted between the months of March through till October 2019 in the City of London, United Kingdom. The research identified three major domains which bolster the crypto community: networking events/meet-ups, conferences and memberships and invitation-only. Three key conferences were to be observed: Blockchain Live (25 September 2019), Blockchain Expo Global (25-26 April 2019) and Blockchain Summit London (25-26 June 2019). The researcher gained access to groups

within the London blockchain space; for instance, the All-Party Parliamentary Group for Blockchain and AI along with the Working Group: Retail Blockchain Consortium.

Invitation access will be discussed further in a later section. The researcher kept a research journal along with an observation schedule to record field notes, especially during and after events. The journal was especially useful in identifying patterns and thoughts, which would not have been otherwise documented. The observation schedule proved problematic to develop without leading the research. It was important to consider the research subject, what data interests the research.

Ethical Considerations

In keeping with the ethical guideline specified by City University's Department of Sociology Ethics Committee, all interviews conducted as part of this research provided respondents with consent forms and participation sheets; informing them of their rights as a participant and the nature and aims of the study.

Punch (2000b: 281 In Grix, 2012: 145) identifies the main areas where ethical issues can arise in research: harm, consent, deception, privacy and confidentiality. As this research was a low risk research according to ethical standards, its methodological approach posed no threat or harm having been approved by the aforementioned committee. The distribution of the consent forms and participant sheets served to iterate and inform their voluntary participation. Furthermore, consent was acquired before any recording of interviews transpired. Interviewees acknowledged their awareness of the purpose of the interviews and that the data collected would be treated as confidential to ensure anonymity of

participants. All interviewees acknowledged their ethical rights as participants and signed and returned the consent forms to the researcher.

Limitations

It can prove quite pedagogical for a researcher in the field, working with various methodological approaches, some previously untested. As Kant iterates, there is ‘knowing and knowledge’ (Kant In Ritchie et al, 2014), this statement is resonant on my personal experiences as researcher, that there are unforeseen events and circumstances that may arise which can be frustrating to the researcher who may have a certain structure of conducting research. Having said this, I wish to acknowledge my weaknesses and limitations as a researcher in this section.

The question of the researcher’s subjectivity is one which is of utmost concern and an ethical challenge, as my immersion in the material can suggest or manipulate the outcome of a question or answer; through leading questions and certain probes which would change the course of the conversation to better suit the researcher’s interests. Therefore, careful caution is to be paid when conducting the research to ensure a neutral and impartial stance.

Methodologically, The focus groups, as previously mentioned, posed problematic due to its research risks. The perceived number of respondents posed an unreliable source of data dependence, as out of the ten persons who had confirmed participation, only four showed up, which was not the optimum group the research required and proved to be a somewhat unreliable sample. This is the risk of such a method as the reliability of the participants

showing up is pivotal to the method of data collection. This posed as an unforeseen circumstance, which was handled by the researcher acknowledging the limitations of the findings of such a small sample. However, this is not to discount the data collected, as was useful in providing some key findings, which will be examined further in the findings.

CHAPTER EIGHT

DATA ANALYSIS

Ethnographic data analysis

In order to further address the research aims, the data collected was transcribed and coded thematically to uncover common and prevalent themes. The themes identified were found consistent and relevant when examining the data yielded from all interviews. Appropriate quotes were selected under the various themes. The ethnographic data collected proved more challenging to obtain due to pandemic-related limitations and hurdles. The proposed period of observing the community of one year was cut short to six months, of which the data will be included within this analysis.

As this study is one of the first studies to explicitly examine a particular blockchain community within an identified technological hub, certain considerations were undertaken due to limited literature and available data in this area. The burgeoning growth of the crypto community within the past five years since the conception of this research has shown significant patterns emerge and poses important questions from an ontological perspective.

Accessing the Field

To gain and maintain access in the field required the researcher to positively engage with gatekeepers (Bergman, Blix and Wettergren, 2015). Field research typically involves

face-to-face interactions usually during a networking or conference event, or key events within the community. According to Bergman et al., (2015: 692) an ethnographic researcher must be wary of distinguishing between their 'private' self and the 'professional researcher' whom they personify in the field.

Furthermore, the researcher found that certain degrees of 'acting' or 'role-playing' became evident. To gain access and trust within the community, acceptance by gatekeepers was crucial, which Ashforth and Tomiuk (2000) proffer 'surface authenticity' where the researcher participates to ensure a separation from the researcher's 'actual identity' (Bergman et al., 2015: 698). However, gaining access within the community is as Van Maanen and Kolb (1985) remark, up to strategy and luck, which is usually unpredictable. In addition, an ethnographic researcher should possess a certain variety of interpersonal skills for the research to be efficient (Burgess, 1984). For instance, Drake and Harvey (2014:490) put forth that prison ethnography required 'significant levels of impression management', which has an affective 'toll' on the researcher resultant from the arduous process of gaining daily access resultant in the researcher negotiating and renegotiating access by constantly having to continuously gain trust from gatekeepers. Due to the low risk assigned to this study, the researcher managed to gain access and retain said access for the full duration of research.

In the Field

“The task of the ethnographer is not to determine ‘the truth’ but to reveal multiple truths apparent in others’ lives” (Emerson et al., 1995:3).

In the field the researcher opted for a moderate level of involvement as Spradley (1980) allows for both an ‘insider’ as well as an ‘outsider’ observance of the field. For a moderate or passive researcher, affords the opportunity to observe by using field notes, photographic and video aids, artefacts, merchandise, and information packets to better document the event (Mackellar, 2013). “Participant observers commonly gather data through casual conversations, in-depth, informal, and unstructured interviews, as well as formally structured interviews and questionnaires” (Jorgensen, 1989: 22). Especially useful in the transcription and documentation process is what Crawford and Turton (1991:12) refer to as the “blow up and show up effect” by using visual aids. Images and videos can help to create a clear ethnographic record which can help to set the cultural scene. A major benefit of this method according to Morrison (2002:31) ‘is that you get fresh impressions, right as things are happening. You can see how the experience evolves, how the expressions change, how people navigate a situation’. Further, another advantage lies in the ability to discern a deeper understanding of the field and participants’ subculture through analysis of ‘phrases and semantics, leading to a discovery of the reasons situations are occurring’ (Mackellar, 2013: 59). However, the method does pose certain weaknesses and vulnerabilities regarding reliability and validity (McCall and Simmons, 1969; LeCompte and Goetz, 1982). Moreover, like other qualitative methods the results are contextual and

specific to the cultural setting where formed. As Nicholson and Pearce (2000: 236) found ‘different events appear to attract different audiences’ and as such cannot be generalised. Furthermore, as problematic with qualitative research, the underlying assumption stands that such research is subject to bias and partiality based on the data collection method and experiences the research may encounter which may influence the results.

According to DeWalt and DeWalt (2002) observation through participation has been expounded upon and utilised to understand new social phenomena. Particularly used in education, the method enables researchers to observe teaching in classrooms (Woods, 1986), in addition to retail shops (Sinha and Uniyal, 2005; Morrison, 2002) and decision-making in tourism (Blichfeldt, 2008; Bowen, 2002). In fact, Getz (2010) contends that such methods have a higher potential to discover aspects of leisure behaviour, and hence allows for new and fresh insights into audience behaviour of the research field. From an epistemological standpoint, the researcher cannot be an omnipresent observer, and as such a focus is necessary. According to Spradley (1980:10) “we observe what people do (cultural behaviour); we observe things people make and use such as clothes and tools (cultural artefacts); and we listen to what people say (speech messages)”. Spradley’s (1980) nine dimensions of observation were utilised to retain a focused approach. Furthermore, Goffman (1956: 66) analysis of performative behaviour and a *front and back stage* must be considered when observing actors in the field. Ethnographic research in evangelical churches found this performative behaviour to be further supported using interviews to clarify ambiguities encountered in the field (Müller, 2015).

Sample Observations

July 1, 2019: Blockchain Dinner: How Blockchain is being adopted and how do we get more companies to start using this technology @ DLA PIPER.

It's Wednesday evening, just after 5:50PM, the afternoon sun is still glowing its last embers for the day, and I have just arrived at a Blockchain Dinner, at DLA Piper, 160 Aldersgate Street, London EC1A 4DD. I arrive and let the concierge know I'm here for the Blockchain dinner (event). I am ushered to the lift. Arriving on the 8th floor I am warmly greeted by two ladies working the event, they check my name against their list and present me with a nametag and directions to the dinner. Once inside the large conference room, there is a long table in the centre to fit thirty persons. I am the first woman in the room, apart from the female server who has just offered me a welcome drink: water, wine, cocktails? The dinner was a free dinner, a coveted spot to attend via a first come, first serve basis on the Blockchain Dinner group of which has 200+ participants.

Our hosts for the evening will be SS, YY and XX, and the topic for the dinner is 'How Blockchain is being adopted and how do we get more companies to start using this technology'?

Once in the door and sat in my seat as per my placement, my eyes are met by an older gentleman, who initiates conversation. He asks, 'what brings [the researcher] to our dinner?', to which I reply, 'I am conducting research on blockchain technology as an

anti-counterfeiting solution’. The sentence struck a chord, as he responded, ‘I made barcodes what they are, starting with the grocery stores’. XX, or the ‘Father of Barcodes’ as he is known in this circle, was instrumental in the integration of barcodes in grocery stores and supermarkets across the country, assisting in retail-loss prevention solutions. XX, has co-founded the British Blockchain & Frontier Technology Association (BBFTA), the Crowd Data Centre and the Westminster All-Party Parliamentary Group on Crowdfunding and Non-Bank Finance.

We are interrupted by the host of the dinner, YY the author of Tokenomics, which examines tokenized models for economic theory. Just a few minutes ago, six seats were filled and within ten minutes at least ten people had clambered into the room. More men in suits were found getting into their seats and ordering their welcome drinks from the attendants waiting by the door. By this time, around 6:10, I have one person on either side, both male, as the seats become filled. I glanced up and noticed the presence of one other female, sat all the way toward the head of the table, closer to the father of barcodes. She is tall, blonde, and confident in her demeanour – she seems comfortable in a room like this. Suddenly, I feel a little out of my element. In opting for the appropriate attire, I considered what might make me most confident and assertive in this environment and opted for a pair of khaki trousers and a rose-coloured blouse, with my hair tied up and glasses. My confrere, on the other hand, was wearing a lovely red fitted dress, which stopped just before the knee with a sharp fitted black blazer and high heels to match.

YY (Martin Bartlam) opens the meeting with an endearing note on the transformative potential of the technology, 'We all see the future of the technology, otherwise why would be here on such a glorious summer's evening', 'I'd like to start by asking everyone to stand up and tell us their name, what they do and why they are here –starting from XX'. Persons stand up and awkwardly introduce themselves, stating the company of employees and their reason for being here. Most persons identified interest in understanding the technology, engaging in use cases and pilot projects, digital assets, and securities of crypto as key areas of interest. What was instantly noticeable was that the room was filled with corporate men; there were no technical experts or developers of the technology. At this point no one has engaged in employing technical jargon or demonstrating his or her technical literacy of the technology.

Martin Bartlam explains the new language of regulation with blockchain cryptocurrency and digital assets. (insert image).

Dressed in a T-shirt and Black blazer was a face I'd recognized from previous meetings in the space, ZZ; Chief Partnership Officer for a decentralised finance provider. His confidence and charisma was overwhelming. [When it came to his reason for being here, it sounded more ideological than financial; a proponent of the 'revolutionary' technology, which creates more wealth for everyone]. On market manipulation of Bitcoin: "Much less easily – you try manipulating the gold market – that was silver – the story two weeks ago why it crashed 3,000 points is that someone put in a sale order and a buy order and he crashed the price and made 15 million dollars" (Interviewee Jan).

The dinner, it would later be revealed, would cost roughly around 3,000 to 4,000 GBP, and was tonight sponsored by XX, to create and build on the existing London blockchain community. After the three courses had come and gone, the table opened up from those chatting to their neighbours. It was the time for questions or comments; a late attendee, the third female in the room, MM, had arrived fashionably late and commenced the Q&A segment by first introducing her book on blockchain applications for decentralised finance and digital assets.

Following this, MM had questions regarding the technical limitations and/or vulnerabilities within the blockchain. This launched ZZ, sitting opposite to counter with a comment on the consensus mechanisms and then scalability. [It was discovered that the right blockchain had a number of criteria for its intended purpose]. I proceeded with my own question, 'how can we ensure good behaviour by all parties on the chain? How can we ensure reliable data will be what we see on the chain? The answer stumped the room, and then YY answered, 'if the data input on the blockchain is bad data then the chain is corrupt'. On this grim note, the last drinks were served.

The above is an excerpt from the ethnographic data collected during the study. The research undertook to observe the field for a period of one year, however due to COVID-19 complications, fieldwork was affected, and time cut short. However, there are certain trends the researcher identified based on time spent observing the London blockchain community. Based on the findings, the data revealed three categories: **blockchainers**, **bitcoiners**, **enthusiasts** and **evangelists**. Blockchainers represent those interested in the

technology, via enterprise solutions, building the community and ecosystem, have a startup based on the technology; interested in other cryptocurrencies apart from bitcoin, see its application in decentralised finance and other solutions. Bitcoiners represent in the data individuals who ascribe to ‘bitcoin maximalism’, miners mostly, they see bitcoin blockchain as the pure blockchain, to achieve decentralisation. Bitcoin maximalists, however, refer to *The Bitcoin Standard (2018)*, by Saifedean Ammous, as a canonical text in the bitcoin literature. Bitcoiners, on the other hand, have a number of deified events, texts and individuals within the ecosystem. Some have previously been identified, Craig Wright, Roger Ver, Anton Antonopoulos (Faustino et al., 2019). Enthusiasts are a small number, and consider the researcher as part of their group. Enthusiasts were interested in all of it and supported all of it, they would be present at every single event, leading the charge through blockchain online WhatsApp and/or Telegram/Discord group chats, pivotal in event marketing and generating buzz. Evangelists were identified as those who only proffer and profess the technology as ‘revolutionary’, ‘bigger than the dotcom bubble’ and ‘immutable’. The technology to them has limitations but they see a brave new world where the technology can shift the status quo, topple existing centralised systems, creating more wealth and financial inclusiveness. Some evangelicals identified in the literature review, Tapscott and Tapscott (2015/16) and Casey and Vigna (2018).

Following this it was found that there was a consistency in a 90:10 ratio of male to female attendance at events, which closer to the end of the observation period saw a shift toward more female attendees, especially on online forums. With the emergence of more physical meetups and online meetups (COVID-19) along with group chat history, it was

found that more women were in the space, working on blockchain-based solutions. For instance, Jess Houlgrave, CEO and co-founder of Codex Protocol, a blockchain-based title registry for Art and collectibles, is also a co-founder for ShEOS, a community-led initiative in collaboration with EOS protocol to support women within the space. Another event, Women in Blockchain, proved by the attendance of over 100 females in London, that there are women working in the space, albeit not always networking but working directly with the product and on the sidelines. For example, Jessi Baker for Provenance has been featured in the V&A exhibition *Food: Bigger than the plate*, a exhibition on food consumption, production and technological advancements, of which Provenance was featured with their blockchain solution for food supply chains to enable *farm to fork* solutions. When I visited the office in Shoreditch, it was an open space with giant cubicles and work desks to encourage shared working practices. Baker is the CTO, which means she is always on the ball, at her desk in front of the computer making sure the network and apps are working seamlessly. The ethos is one of ethical and sustainable practices, which is reflected in the work environment, a space to promote creativity and productivity, yet still not cashing in for the WeWork experience, which they could certainly afford with their most recent influx of \$1M Euros for the *Blockchain for Social Good* prize, the EU Horizon 2020 award for their latest innovation – Proof Points, which responds to the United Nations Sustainable Development Goals (SDGs) by enabling consumer goods’ brands to be publicly transparent on their social and environmental impact in a format designed for the Internet Age (Provenance newsletter, 2020).

Social codes which emerged as consistent previously had now fused with the traditional office mode of dress. Meetups within the blockchain ecosystem have become a major tool in message dissemination and building localised communities. Events on the other hand, offer more insight into industry and governmental adoption.

While attending a Blockchain conference held in Kensington, Olympia; the panel of speakers included a talk on stable coins by Dr. Garrick Hileman. Hileman's talk was standing room only, where he presented his research on stable coins and their governmental adoption. Following this talk in 2019, in January 2021 the HM Treasury published a Consultation and called for evidence of a UK regulatory approach to crypto assets and stable coins. This is in keeping with the chain of events, which suggest conferences play a critical role in the technological roadmap to adoption.

However, it must be noted that these conferences can pose a challenge of authenticating personnel in attendance in addition to gaining access which is oftentimes a high-priced ticketed event. The following field notes elucidate the former challenge mentioned:

I encountered two men; one I had met earlier now had a camera and was recording another suited man, Sikh. In assessing the scene before me, the man from earlier (A) noticed and beckoned me over. A introduced the man he was recording as 'very' important and integral to the blockchain ecosystem. I probed for further clarity. "I am working from the beginning to create the Bitcoin network"

Having not known too much about the technical infrastructure of the technology I asked the questions I heard others asking: how can we achieve more scalability? How can we ensure interoperability? How can we ensure reliable data is on the blockchain? He introduced himself as Satoshi and asked me about my interest in the technology. I discussed my research interests which seemingly garnered his seal of approval at which point I was handed a business card (A and Satoshi) with details to get in touch in a day's time for an opportunity.

The above excerpt illustrates just the beginning of this tale of deception, which the researcher encountered. Owing to the technology creator's enigmatic profile, I encountered two persons, one claiming to be Satoshi Nakamoto, from the bitcoin white paper and the other, supporting his claim. What transpired later, ensued in the alleged Nakamoto requesting the researcher's presence for an opportunity to explore a blockchain training centre. The researcher met with the alleged Satoshi in a public setting toward which subsequent correspondences demonstrated a transgressive behavioural pattern which alarmed the researcher into ceasing communication.

Researcher: If you're really Satoshi, why haven't you come out to the public?

Satoshi: 'I can't come out because they will kill me, there are people who know what I have done and who I am and they will kill me – they have already attempted to kill me before and killed my mother. Vitalik is a robot, like the rest.

Researcher: Who tried to kill you and why?

Satoshi: They injected me with a microchip and they tracked me and tried to poison me before – I came close to dying and it left its effects.

Researcher: What do you mean Vitalik is a robot?

Satoshi: He does what I tell him, the future of this world is going to be different.

You will not have to worry about money; we will have enough for everyone. You will be there to lead with them, as the Blockchain lady.

The above excerpt illustrates a challenge and danger with this ethnographic method. The above communication ended shortly after between the alleged Satoshi and the researcher. It became clear that this story sounded less plausible the more he carried on. The paranoia was unmistakable, deliberately shielding from persons and concerned someone was following him or trying to take his photo. He only drank from a one-litre bottle of orange juice and refused to consume food or beverages, which were not from his personal collection. This is a danger and hazard within this community. Another Faketoshi claim came from the Australian Craig Wright, now living in London, UK. This scenario brings to attention the need to establish situational awareness and critical observances in new surroundings unknown by the researcher. In hindsight, the researcher posits that, had this event not occurred it would not have brought to attention this pertinent threat of deception and fraudulent claims within the blockchain space.

June 25, 2019: EOS Event

Entering the *WeWork workspace*, I am at the *Moorgate branch*. [I enter the majestic building to find a plush, giant sofa at the concierge and lobby. Markedly different from previous office buildings, this workspace has a Silicon Valley vibe, a more creative and

relaxed space. There were no suits in sight, apart from some of the attendees making their way with me to the event]. *On the fifth floor we are welcomed to the event by members of SVK Capital, joint event organisers with EOS. EOS, a rival to the Ethereum public blockchain, CEO of Block.one, Brendan Blumer is at the event. I didn't know this at the time, but this was a huge deal in the community.* EOS had recently raised over one billion USD to support the EOSIO blockchain. Peter Thiel, of PayPal, was noted as an early investor. EOS, the ancient Greek word for dawn, earned the most in crowdfunding for an Initial Coin Offering (ICO), record-breaking \$4.362-billion USD.

Taking my seat, next to a couple of suits, Blumer is introduced. Brendan's opening line, 'I will bet a million dollars that EOS goes to \$1,000 by the end of the year' (2019). This opening gambit would stay with me as my fieldwork progressed. What followed Blumer, was a presentation on the infrastructure of the network and protocol, which most tech focused attendees were happy to critique with the plan to use DPoS, delegated proof-of-stake which allows for real-time voting within the EOS network.

The above excerpt the researcher finds illuminates a key facet of the blockchain culture which is one of 'over hype' - grandiose propagations which ultimately fizzle. Within the blockchain ecosystem, EOS has embraced the blockchain revolution, particularly their cryptocurrency EOS. The bet Blumer makes ultimately is lost as EOS never reaches \$1000, and still has not. At the time, EOS, positioned as a superior rival to Ethereum, had earned a record-breaking initial coin offering of \$4B USD, with strategic backings by Peter Thiel, founder of PayPal, and other whales. EOS is not a failed project, but it

represents a marked observation on the ebbs and flows of the volatile world of crypto currency and challenges the new technology presents. At present, the NFTs are experiencing a bull run expected to continue or expire, but it is important to question this heavy volatility and whether investments can be trusted within the space. The following two excerpts will shed light on various beliefs and interest observed within the study:

June 25, 2019: Blockchain Summit London

I arrive around 10am for the summit, held at the Exhibition centre at Kensington, Olympia. There is already a big queue, as people pile in from various entrances. Once inside, an event worker assists you in getting your nametag printed and lanyard for the conference. After a security check of bags, I make my way into the grand conference centre; where I am given a recyclable tote bag, which has the conference schedule and leaflets from promoting businesses. These goodie bags are popular with events and meet-ups. The cost to attend this event was 995 GBP, however, the researcher was provided with a complimentary pass from one of the event organisers.

Once inside, there were dozens of booths and stalls all promoting the technology. The first booth I found myself at was for a cryptocurrency news platform, Coin News Desk, who 'promise to make crypto news understandable and available to everyone'. Other booths and stalls were occupied by start-ups, venture capitalist funds and angel investors. The conference was unlike anything I'd previously attended, most people were dressed down, in t-shirts and jeans, with some wearing suits.

I entered one of the talks: a discussion on blockchain technology for supply chain management. The speaker, Anthony Welfare, previously worked for Oracle and now consults on new and emerging technology; had already started his presentation by providing a backdrop on the technology and then providing current use cases using the technology; which were typically shipping and logistics industry use cases. A final use case looked at using a blockchain to track and trace the supply and production of olives into olive oil to its end-consumer. Welfare identified counterfeit olive oils as a market, and demonstrated how the blockchain may be used to keep an immutable record of the journey from the olive farm to bottling the olive oil and then onto distribution before purchase by the end-consumer.

April 23rd, 2019

Blockchain Meetup

I arrived at the Monzo head office located in Moorsgate for a meetup called Blockchain for Beginners. This evening some folks from Ethereum are in attendance to hear about new projects in the space. Meetups within the blockchain ecosystem have become a major tool in message dissemination and building localised communities.

I arrive around 5:45 PM, it's July 20th and a crisp sunny evening. Going up a flight of stairs I find myself in a loft like office space. In the kitchen there is beer and wine on tap,

*a fridge filled with an assortment of beverages, non-alcoholic and alcoholic. The shelf of the kitchen is filled with boxes of Pizzas. It's definitely Beer and Pizza only, some bags of potato chips and bottles of cold bottled beer and canned water for those not wanting to try the drinks on tap. I get some water and find a seat near a couple. I introduced myself to them and they've just arrived from another hub, **Berlin**. JJ and WW are a young married couple who have moved from Berlin to London in order for WW and his team to start operating their business R-Chain, which allows individuals to store their information on a blockchain, such as digital identities.*

WW and his team open the evening's programme which is met with some approval from the guys wearing their Ethereum shirts or hoodies hunched over laptops. Following this is the introduction of ZCash, from the applause it's clear this is a favourite within the crypto community. ZCash presents their company and technical infrastructure of their blockchain. A common theme for projects presenting is to show their inner workings – this is a chance to receive critiques on the technological makeup for their product. It arrives at the last question for the ZCash Q&A, a hand shoots up – followed by a voice that carries. 'These are all shit coins, bitcoin blockchain is the only blockchain that works and anyone else trying to tell you otherwise is trying to sell you something' – 'Did you have an actual question?' AA replies, 'I've asked how is your coin better than bitcoin?'

The above two excerpts illustrate marked distinctions between what the researcher identifies as a blockchainer and a bitcoiner. AA, a bitcoin trader, has gambled everything

on bitcoin – moving away from his family in Romania to London in pursuit of the bitcoin dream. This bitcoin dream, AA told the researcher, was the chance to have a different life, which [he] chose, through the economic freedom bitcoin provided. AA caught on to bitcoin in the very early years circa 2011, when bitcoin was still relatively confined to technologically minded circles, particularly cryptography. AA made enough money from bitcoin to move to London and secure a comfortable life living in flats between Paddington and Baker Street. AA, an early bitcoiner, had made his way around the blockchain sphere and met the likes of Roger Ver, Charlie Shrem and Craig Wright. When asked if he thought Craig Wright was the real Satoshi, AA replied “We went to dinner, me and this girl I knew who knew Craig Wright – anyway he was only paying in bitcoin, so the bill comes for our meal at this fancy restaurant and it’s \$800 GBP, so Wright tells them he only has bitcoin to which they refuse to take it as payment and he had to foot the bill instead”. Wright’s predilection for payments only in bitcoin was the least of AAs scepticism that he could actually be Satoshi. The veiled identity behind the man, who gave us bitcoin and blockchain, is one, which will garner significant attention as he or she or they hold 1 million bitcoins in their account on the Bitcoin network. Further, AA belongs to a faction within the crypto sphere known as bitcoin maximalists. They have weekly to monthly meetups for the group called Bitcoin Maximalists. They believe Satoshi’s main purpose was the bitcoin blockchain and any technological deviation from that will lead to failed decentralisation without bitcoin fulfilling its true purpose: to create wealth for everyone. Bitcoin maximalists cite Saifedeen Ammous’s text the *Bitcoin Standard* as foundational in the understanding of the technology. Maximalists are absolutists in their belief that the only successful application of

blockchain technology is bitcoin. Alt-coins are shit coins and all other protocols are capitalising on the blockchain moment to pretend to be a part of a revolution when they are introducing an old technological solution as a new one.

Moving on to the first excerpt, which identifies a typical *blockchainer* in the community. Welfare, author of *Commercialising Blockchain*, has previously worked at Oracle and with cloud networked systems. AW saw the magnitude of the technology's potential for various use cases, particularly in enterprise blockchain solutions. Like most blockchainers, Welfare is not heavily interested in the crypto markets, but more interested in the use cases the technology could foster, particularly track and trace solutions for supply chains, shipping and logistics, retail etc. AW also participates in contributing knowledge within the ecosystem, a part of the Working Group, Retail Blockchain Consortium, has published a key report with other contributors through UCL. Many blockchainers are different from evangelists as they are more focused on the industry and governmental adoption and policy making and tend to stay away from networking events run through ad-hoc groups and channels. Blockchainers will align with a company and work toward producing tangible solutions and results.

The author further identified bitcoin evangelists, which follows evangelical preachers, with the introduction of Andreas Antonopoulos and Roger Ver – both of whom preach and adulate the power of the Bitcoin blockchain, the Holy Grail (Faustino et al., 2021). The research proved fruitful in identifying certain rituals affirming Faustino et al., (2021) and Cui (2019) mediatized rituals. Johnson (1979:313) posits that religion is a “kind of

code, model or *paradigm* that shapes or patterns a more or less ‘total’ way of life: inner experience, action, and judgement”. Within the blockchain ecosystem there is a model that shapes the experience. Key events such as Bitcoin Pizza Day, celebrated annually in the community, of the first real-world bitcoin transaction. These symbolic and commemorative events surrounding the Bitcoin lore have created the conditions to support Durkheim’s treatise and to the extent the performance of rituals is necessary for social cohesion in the crypto-community. Faustino et al., 2021 further that through these first two consecrating events has laid the foundation for the creation of a crypto-community, consisting of Bitcoin evangelists, entrepreneurs, enthusiasts, and a myriad of varying projects hovering around the ‘reformative and revolutionary power of this technology’. Today’s modern Western societies, Faustino et al., determine a romanticising of the capitalist adventure, where the ‘myths of lone entrepreneurs, who sleep in the office and eventually become billionaires (Thrift, 2001) and of businessmen who are dedicated to furthering the success of their corporations in a cult-like deprivation of their personal lives (Mooney, 2005), or of ‘moral entrepreneurs’, whose obscene wealth is pardoned by philanthropic acts (Fuller, 2013). Today the names of Jobs, Musk, Zuckerberg and Bezos represent the titans who paved the way for a new breed of billionaires coming out of techno-industrial clusters like Silicon Valley.

Ritualised ceremonies, as seen surrounding blockchain technology, can be *ritualised*, *stylised*, *formalised* and *repetitive* [Goffman’s ‘maintenance rites’] (Nadel 1954) – whether they are religious acts or secular rituals as illustrated by Moore and Myerhoff (1977); Goody (2010). The authors, finally contend, that such actions are ‘framed’ by

tales as seen in the narrative, which serve a critical function and expose latent political and societal implication (Propp, 1968 [1928], Barthes, 1972 [1957]).

AA later invited the researcher to a party on Halloween, which was to celebrate the bitcoin white paper release. These ritualised events serve to identify the growing culture and religious-like attributes since the technology's inception. Recently, bitcoin surpassed an all-time high of \$60,000 resulting in a plethora of parties worldwide to celebrate this news. The enthusiasts are enjoying this moment, those who enjoy the technology but are not attached to it. These enjoy the luxury of dipping their toes in and testing the waters, experimenting with alt-coins, and building a crypto portfolio. The following chat will show a recent exchange, which discusses a hype coin, Doge coin.

Stanley: Wu Blockchain (@WuBlockchain) Tweeted: The Chinese got up and saw the news of the listing of Dogecoin on Coinbase, the price was pulled up by 10%. Chinese users account for the majority of Dogecoin transactions, concentrated in Binance Huobi and Gate. <https://twitter.com/WuBlockchain/status/1399919253692682244>

Elon picked up this...Go Coinbase Pro (three rocket ship emoji)

Previously on 16 May 2021, another user commented, “doge coin was literally more efficient last quarter”.

What is apparent is the technology applications and persons involvement within the ecosystem are driving discourse. Most days the researcher receives hundreds of messages

on one of the chats or channels subscribed to, additionally this access sees others wanting a foot in the door through group invitations. Doge coin is an example of a meme coin, created in 2013 as a light-hearted, meme-inspired alternative to traditional crypto currencies. Unlike bitcoin, which was designed to be scarce, Dogecoin is intentionally abundant – 10,000 new coins are mined every minute with no maximum supply. Shibacoin, backed by Elon Musk, has also seen interest in the markets, however it is still with high volatility, a common trait with bitcoin and alt-coins. Other significant patterns emerging from the space is the shift toward laid-back, creative workspaces such as the many WeWork locations around the city which hosted or participated in London blockchain events. Level 39, an identified technological hub, is provided in a description below:

LEVEL 39: Linfinity Blockchain Forum

August 30, 2019

[After gaining coveted access to a major technological hub in the City] *Level 39 (L39), known within the fintech space, sits on the 39th level of One Canada Square, located in Canary Wharf. Today, Linfinity, a blockchain-based anti-counterfeiting solution is presenting their use case from Singapore.* [Once on L39, glancing down on the tiny people from the top, it's a different atmosphere to the abundant We Work office spaces in the City. More of a fusion of tech and suits, smart attire or smart casual is the desired dress code for this venue]. *Linfinity summit commenced with a handful of introductions from startups before making the way for the main headliner. Suddenly four cheerleaders emerged from the back to introduce Linfinity's CEO. Linfinity's CEO Anndy Lian, makes*

his way to the podium to introduce Linfinity and to discuss how blockchain is being utilised by his company to create anti-counterfeit solutions for Asia. He engages in identifying use cases, pilot projects before ending on a discussion of the technical infrastructures, which is then handed over to his Chief Technology Officer, to answer questions. Lian and his team, all clad in suits, are on the red eye back to Singapore after this presentation.

L39 and other office spaces, promoting a certain ethos or work culture, are integral in building the ecosystem and driving community. However, the recent events of COVID-19 have seen a stay-at-home work from home order, which has seen a collapse in the previously growing office space industry. Today, the likes of L39 and WeWork are desolate, solitary haunts of a time before, a time when office life and work culture played a major role in creating a cohesive office and productive organisation. These offices would extend to a culture; many of the blockchain events took place at various workspaces in the evening between six o'clock to nine o'clock. Typically the office space will have a self-serving full equipped and stocked kitchen, ranging from light snacks to beer, wine and even prosecco on tap. Coffee and boxes of pizza typically filled the rooms of these events, and were particularly attended to by bitcoiners and blockchainers. At these events, members would pontificate over the virtues of the technology and offer criticisms, each one trying to outmanoeuvre the other in technical prowess through a linguistic rationale. The following excerpt illustrates the block-tech deliverance through technical jargon:

P.: “I’m more inclined to think no more than 5% of society will learn code - node red has a no-code programming platform for young students, stack.co has a bitcoin smart contract platform”

R: “and Catenis?”

P: “they’re referring to “blockchain of things” a lot, not sure if that is even a category and helium is the blockchain of IoT, for lack of a better word this seems like an escrow system, and I guess virtual devices are what they’re referring to as things”

R: “RaspiBlitz?”

P: “that’s cute I saw a teenager do that at a bitcoin hackathon”

P: “I’m doing everything on algorand currently, I like its approach to smart contracts – much simpler, much cleaner – I’m not sure how well node red and catenis scale, my gut would say it doesn’t”

R: “Good, I’ll check it out but it’s algorand proof of stake?”

P: “Algorand is pure proof-of-stake, PPoS is a different implementation – meaning the people with more stake don’t get more control”

R: “I need something for proof of work”

P: “Well in your case you don’t actually need proof-of-work with Nakamoto consensus, so you could build an efficient proof-of-work layer on proof-of-stake; and don’t worry about Sobel in the first place because its managed at the system level, i.e. virtual machine”.

R: “I need it because the basis of my network is Bitcoin Core”

P: “Bitcoin Core isn’t good code, you can do proof-of-work without using its consensus model or code”

R: “Oh I see...that is a beautiful solution, we are not there yet – first my prototype proof-of-concept network in ERC20 in the next two months then we start building on Bitcoin Core which will take around twelve to eighteen months build time, or so I am told”

P: “just don’t think of bitcoin as money, it’s tech. What happens to tech? Bitcoin is in the desperately trying not to get replaced seat and Ethereum already picked up the smell of decay and ran in the other direction. So when Bitcoin is about fifteen times slower to do stuff and thirty times less efficient than Ethereum – I think it will go from being looked at as any fiscal utility, it will be like art – well I’m making AI machines to service mankind’s insatiable need to produce garbage and not clean energy

R: “God, we fully agree... That is exactly why we must develop the this Human Energy coin with exactly the same characteristics as theirs but with a simplified hasrate and decentralized escrow. (bitcoin does not have one). That is why several people got pissed off at me when I was discussing with them the Human Energy Coin based on the bitcoin core. They saw the value of their bitcoin reduced as the human energy coin would suck their value”.

The above illustration tended to follow this trajectory and narrative, each party trying to outmanoeuvre the other in technical virtuosity often accompanied by fantastical ideas and notions of challenging the status quo, disrupting the social milieu and fabric of modern

society. Once the event would end, after much beer and pizza, smaller groups would either drift to a bar for one last drink before home, or head directly home. The rationale behind the meetups lay in the community building aspect, often highlighted in-group descriptions. Further, the successful implementation of the technology adoption is reliant on the collaboration of multiple actors and agents across borders. The impact of COVID-19 while it has halted physical meetings, a vibrant and expansive network has proliferated with thousands of persons logging in for weekly webinars and key blockchain events. In contrast, pre-pandemic conferences furnished an opportunity to be entranced by evangelists and to behold the crypto whales, an ostentatious display of crypto wealth. Raves and lavish after parties would follow such events.

AA: “EOS has so much money they don’t know what to do with it – I was just at their launch party and they’ve got ice sculptures, and fountains and a rave happening at the top of a skyscraper in the city – they’re sponsoring every event in the city to add”.

Hackathons were identified to fit the criteria for key events, however, to participate it would require a technical virtuosity, specific skills in computer programming. Hence, the researcher was unable to gain access to these events. Hackathons, like other key events, can be interpreted as mediatized rituals, evident in their processes. Ethereum and other protocols like EOS tend to host the hackathons, in order to identify good developers and programmers who may add to their existing talent pool. These activities require a certain calibre of technical knowledge, which in the process builds and fosters the community.

Harking back to the origin story, Faustino et al., further posits that Satoshi's absence in leading this decentralised community, coupled with the preservation of anonymity and its political functions (Foucault 1979; Bordeleau 2015), constitute symbols for the modern hacker culture, for instance *Anonymous*. This failure to identify the creator, the author's confer makes it difficult to forge any relationship as seen with other techno-gods and thus, stimulates the perception that the followers are not solely users, but also members of a community of equals – who are able to freely experiment with the code without incurring judgement from its creator (Humayun and Belk 2018; Nelms et al. 2018). This observation is in line with the shift toward a modern hacker culture. Satoshi's tale is useful in stimulating the image of an anti-establishment coder who frees society from centralised power, represents an explanatory function with concerns to the symbolic impact of technology on society. Some authors have argued that this discloses contemporary social anxieties regarding the centralisation of money and more so the centralisation of power (Faustina et al., 2021).

Although this WeWork culture is one of t-shirts and smart casual, the men in suits became more noticeable toward the end of the observation period, signalling a trend toward industry interest and adoption. Mode of dress and conduct has been identified as observed within the London blockchain space, apart from select events with a growing trend toward t-shirts, jeans and trainers, hoodie optional – most goodie bags from conferences often came with a t-shirt.

The Blockchain Dinner and *the Blockchain Breakfast* are examples of enterprise and industry led initiatives to identify influencers, policy makers, entrepreneurs, start-ups, and academics working closely with the technology. There exists an overlap between the participants within the ticketed Dinners and Breakfast events, and policy-led initiatives such as the Retail Blockchain Consortium working group and the All-Party-Parliamentary Group for Blockchain and AI. On the one hand the **bitcoiners**, are working on the back end of the technology while the **blockchainers** cover the front end, through a market-oriented and research led approach. The APPG partnered with *Big Innovation Centre* has opted for a research-led approach harnessing the research tools available to produce insightful data, along with parliamentary support. For instance, from 2016 to 2021, twenty-nine Conservative Members of Parliament mentioned blockchain and DLT in Parliamentary speeches (TheyWorkForYou In Blockchain Report, 2021). Followed by seven mentions by seven separate Labour MPs. It was quickly discovered after attending an APPG meeting, that the technology adoption was favoured by the Conservative party, with a number of Tory MPs in attendance. Lord Holmes of Richmond identified the technology twenty-nine times in various speeches at Parliament between 2016-2021, which is in keeping with his role at the head of the APPG. Like the APPG, the Retail Blockchain Consortium elected a research-led approach with the publication of their previously mentioned report, which focuses on industry and governmental adoption and challenges faced. Both are in addition, involved in providing data, which helps to foster and drive adoption.

It has been found that the roles of various agents within the London blockchain ecosystem identify the technology as transformative and seek to bolster a community to aid in driving adoption. Furthermore, community is integral to this ecosystem, which sees collaboration and competition as crucial to technological advancement, industry and government adoption. Key events such as conferences are pivotal in generating buzz and acting as a ritualised event, along with hackathons. The blockchain space bears resemblances to cult rituals and practices through mediatized rituals and evangelical pontifications.

SAMPLE JOTTINGS

Blockchain Live Conference

More of a who's who of blockchain and crypto – celebrity guests included Vitalik Buterin, Brendan Blumer EOS, Hosted by Dr Garrick Hileman, other celebrated evangelists included Craig Wright and Anton Antonopoulos. Event is more like sacred rite in blockchain ritual – mediatized rituals on the chain. More suits, shift from mainly t-shirt and developers. IBM, Google and Oracle are present. Biggest space is for EOS, who sponsored the event followed by a Hackathon.

Working Group

Circular economy, more men to women ratio, mix between suits and t-shirts/hoodies.

Focus on impact of technology for transparency and supply chain traceability. Pre-report launch, more interested in questions and informing others. Sainsburys and Tesco are in attendance, interested in how a blockchain can be integrated to assist supply chain issues also to show provenance for foods. Interest in fashion and supply chain traceability – cotton initiative – Geri

Interviews

I. The Participants

In the end, a total of fourteen interviews were conducted. However, Gentles et al., (2015) offers a justification that less than ten qualitative interviews would satisfy the research. “It is rare that five or six one-hour interviews will provide sufficient data to lead to saturation”, which was on the lower end (Gentles et al., 2015: 104).

The suitability of the sample was ascertained following personal interactions and research on the London network. A total of fourteen interviews were carried out with various persons within the blockchain ecosystem as well as cross industrial roles. Interviews involved in-depth elite interviews, among professionals within the following sectors: art, blockchain, luxury, fashion, retail. The questions asked differed between participants

based on their experiences and knowledge in the technology. Due to COVID-19 restraints, some of the interviews were carried out via Zoom video conferencing online platform.

Hence, bearing the research aims in mind, the questions were tailored to each participant to assuage a relaxed, conversational approach. **Interview PN** (55-70 y/o) and **RS** (30-39 y/o) British male and female, respectively, hold a background in art and currently work in the art industry in London. **Interview BS**, Indian female aged 30-39, has a background in retail technologies and currently works with technology provider *Mercaux* and later *GoInStore*, an e-commerce digital platform based in London. **Interview YY**, based in Hong Kong, female aged 30-39, with a background in luxury fashion and public relations, employed at *Dior* [under the LVMH family since 1984 through the acquisition of Agache-Willott]. **Interview DC**, British-Indian male aged 40-55, has created blockchain based solutions for supply chains and has been working with the technology for over five years. **Interview SF**, a female aged 30-39, conducting research on the technology and based in Lisbon. **Interview TL**, British Caucasian male entrepreneur, founded a blockchain R&D company, with an interest in non-fungible tokens. **Interview BA**, American male entrepreneur aged 40-55, set up think tanks in the blockchain space and now focuses on consulting with companies on integrating blockchain technology. **Interview JF**, a British Caucasian male aged 40-55 has a blockchain learning and consulting firm and weekly contributor to *CityAM*, *CryptoAM*. **Interview TP**, British Caucasian male, aged 40-55 event organiser and *Tokenomics* author, works closely in London blockchain space. **Interview QM**, French male aged 30-39 working directly with

the technology for seven years in Europe, based in London. **Interview ES**, British Caucasian female aged 30-39, works closely in crypto projects, author and consultant for decentralised finance projects and cited as a key influencer in London Blockchain space (Blockchain Report, 2021). **Interview AL**, Scandinavian female aged 40-55, employed on the DH Anti-counterfeit team operationally based in the Netherlands. **Interview AS**, British Caucasian female aged 30-39 working directly with the technology and based in London, UK.

Selection of the sample was based on specific criteria as aforementioned, and is further supported by Basalla et al., (2021) selection criteria for elite interviews for instance: experience in the industry, key influencers who may inhibit or facilitate implementation phases (pp. 139) and persons known to express opinions and views on the technology. Furthermore, the researcher has made the decision to anonymize names for confidential purposes, as one respondent asked not to be named. Following this request, it was determined to withhold the identities of all respondents, and hence will be referred to according to their numerical assignment.

Interviewee **PN**, is a former Antiques Roadshow television host and founder of Leicester Gallery, located in Mayfair, London. Interview **PN** amassed a magnificent art collection which he advised, 'I sold the rest of it after the Gordon Brown fiasco and bought this place,' this place is a three-storied house in Bloomsbury square covered from ceiling to floor in art, particularly British painters. Interview **PN** consulted on the Burne-Jones catalogue raisonné, which he adds "endless work to do – mine adding to the Burne-Jones

catalogue raisonné which will take live ASAP”. Interview I, like most in the art world, are curious about technology.

“We went to – Trust Machine: The Story of Blockchain – the film premiere at the Science Museum in February [I am sure you know all about it] all the people in the film were there and from what I understood from the final conclusion from the panel was that Blockchain as it stands as the moment will be completely redundant and reworked in the near future”- ‘art doesn’t need blockchain, at the moment I don’t see any real world application for the technology in the art world’ – ‘Whatever, we all have to do what we have to do and I have my work to do [Burne-Jones catalogue], which in the end has nothing to do with blockchain as I have left it all for the future too ultimately changeable and to be added to”.

The interviews were analysed according to potent themes which emerged throughout the research. Themes were classified, consolidated and a conclusion of the emergent topical themes encapsulated the relevant points for identified categories. A prolific theme, which presented through the data analysis emerged as consequent to a ripple effect: the growing trend of non-fungible tokens (NFT), its role in the luxury industry and the importance of community in the blockchain space.

Rooted in a rigorous application of a grounded theoretical approach, the researcher identified concepts and categories elucidated through the analysis using Delve, a coding software for qualitative data analysis. The analysis underwent three phases of iterations

where the major themes emerged as follows: (a) supply chain enhancement, (b) trends toward digitisation and (c) challenges, criticisms, and hindrances to adoption.

In the end, one hundred and sixty-two codes were reduced to six overarching categories as follows: (i) technology advancement, (ii) new capabilities, (iii) new challenges, (iv) community (v) non-fungible tokens and luxury and (vi) technical virtuosity. Notable sub-categories which emerged included (i) traceability, (ii) provenance, (iii) decentralisation, (iv) governance structures (v) transparency, (vi) fractionalisation, (vii) technicalisation, (viii) circular economic practice. Blockchain architectures emerged as a minor theme, however as interviews progressed over the research duration there was a noticeable decline in respondents discussing technical infrastructures and consensus mechanisms.

Technology advancement

Interviewee **TP** pronounced “*what I can’t believe is that there are fifty deals everyday – fifty deals everyday – if I go back, just ten years its tripled, if I go back to DotCom when it was booming its quadrupled – so now we’ve got more projects happening faster than any human being can keep up with anywhere in the world – and I’ve never experience that intent – never*”.

Respondents held a common vision of the exponential impact of the technology on enhancing supply chain transparency and overall improvement in business procedures

and operations on a global magnitude. Within this categorisation blockchain architectures, governance structures and technicalisation emerged as salient sub themes, and will be further discussed. Arguably noticeable was the increase in technological convergence of blockchain projects with associated technologies, namely the convergence of IoT, smart tagging and cloud technology. The respondent employed through Dior, represented the only luxury brand within this research sample, expressed very little knowledge on blockchain or its implementation. However, the researcher observes the respondents' role from an inter-organizational perspective may be limited to their scope of function. In contrast, respondents closely working with the technology for some years were most enthusiastic and most critical of the technology resulting from experience.

Interview **AS**: “With XX the ground-based tree monitoring system, we see how technologies can support supply chains, so we are also rolling out a blockchain-enabled system with XX, for end-to-end fibre tracing technology”. Further, textile tracing platforms enabled through blockchain technology have already shown significant results.

Interview **AS** remarked that “*sustainability is at the core of our brand, and we are claiming 98% preferred fibres [sustainable materials]*”. However, a recent collaboration with another textile tracing platform, *Textile Genesis*, found that “*around 30% of sustainable fibres are fake and the fashion sustainability index claims that most brands don't know their supply chain and have limited view so we are faced with many certifications which we have to take on face value without having transparency in supply chains so it is a challenge to optimise our decision making or protect the brand*”.

However, a contradicting view was held by Interview **BA** which posited “*there was a lot of movement toward adopting blockchain just in the sense of the fear of missing out, in many cases it ended up being not necessary for particular use cases*”. This alternate view is in line with empirical claims of ‘ripple effect’ (Della Valle and Oliver, 2021) which may not always be the best solution, still the organisation swarms once big market players adopt a new technology (IBM-Maersk TradeLens.com). Despite this, respondents working with the technology cited evidence of pilot projects and successful implementations.

A shift toward circularity in fashion and luxury sectors is evident as mentioned with *Textile Genesis*, Hong Kong based technology provider where sustainable fibres and fabrics from the Lenzig Group can be tracked throughout the production process with Fibrecoin – a digital fingerprint software (textilegenesis.com). Moreover, MYAMQ, an Alexander McQueen subsidiary established in 2020, tracks garment resales using the VeChain blockchain platform which developed an NFT to connect to the digital twin of the product (asset) (Heim and Hopper, 2021).

A prolific theme arose through proof-of-concept collaborations and investments in the technology by tech companies as evidenced in the above excerpts. In fact, at present Google is exploring strategic blockchain implementation toward development of its web3. Google CEO, Sundar Pichai (Alphabet inc.) on web3, “we are definitely looking at blockchain – much broader than any one application. Just one example, our Cloud team is

looking at how they can support our customers' needs in building, transacting, storing value, and deploying their products on blockchain-based platforms" (Bitcoin.com).

The author of *Tokenomics*, expressed utter astonishment still when we discussed one year later the state of the blockchain landscape. Interviewee **TP** and his son have been closely working with the technology for several years, preceding the publication of his book which examines tokenized economic models, and like some techno-social families have embraced and adopted the technology as a family. *"XX and I looked at one hundred projects when we started and there is now seven thousand, we are now mind blown by the amount of projects – blockchain projects it's bigger than DotCom – DotCom was big in the late nineties but you knew most of the projects in your head – you can't hold eight thousand projects in your head – if you think there is five thousand publicly listed companies and if each one of those associated with one blockchain project related to them, their network, their supply chain – then there is already three thousand more of those than there are public listed companies in the world".*

New Capabilities

Interviewee **TL**: *"Blockchains provide traceability that is credible and smart – so any system that is not fully credible or is not smart (paper-based) blockchain has the potential to replace those systems".*

In addition to directly impacting the companies' value chain, transforming it from once opaque to more transparent, it was found that new capabilities such as digital passports and certificates could optimise supply chains and enhance luxury brands. Another key finding emerged with the new capability of information sharing. The following is an excerpt from interviewee XI which will enrich the following discussion.

“We started in 2018 with vaccine supply chains, so back then you can imagine vaccines were boring, not as exciting as they are today, but they were very critical products. They are saving lives, and there are huge challenges with the vaccines supply chains, the reason why we went with the vaccine supply chains is because of where I’m located – I live in Hyderabad – the vaccine capital of the world – approximately 30% of the volume of vaccines is manufactured in this city – so 30KM where I am there are a bunch of vaccine companies – I mean like a third of the global vaccine volume. I came across many issues with the supply chains – first thing there is very little visibility – the manufacturers ship the product and give very little data back – so like what condition the products are in – what’s the safety of the products and it’s the same issue with the distributors down the chain that results in lost information. So track and trace is an old technology, it’s nothing new – people have been tracking and tracing, but the problem has been that there is very little data shared between various stakeholders, and that was not possible before because they were logged into these data silos which are very hard to get out of and that was a very big problem so when we could solve that problem by taking a very simple approach. If you can track a product from manufacturer all the way to the consumer and at various touch points as it moves along this journey if you can capture data with the quantity and quality of the product and of course safety of the product –

*and you can basically solve some of these issues. The major issues have been related to not having real-time access to the data which cause failures with product damage due to exposure to high temperatures – lots of problems with expired products which instead of being safely discarded end up getting vaccinated to people which caused several problems over years in several populations. There are issues in counterfeiting, increasingly, in about 10% of the products in the market are getting counterfeited – numbers relating to the vaccines industry in general. And finally issues with products ending up on the black market”. **The Blockchainer as hero.***

“The problem is not to control the products upstream, such as where the products originate – where the products and materials come from, but to control the downstream – where the products go in terms of distribution and usage. An instrumental feature for product visibility is that it is important both upstream and downstream, especially important for safety critical products like vaccines for product safety and related liability. The concept of data sharing as discussed, and in reference to track and trace’s unnovel, but each organisation is doing their own and every piece of data previously was not able to talk to each other”.

In support of this was interviewee **AS** whose work with blockchain with particular attention to traceability and monitoring was deemed insightful and recognized the importance of data sharing capabilities previously unfound. [Apparel supply chains]

“currently traditional certifications expend extensive resources, have a lot of paperwork and auditing requirements – and there is a lack of data management structures, there is a

*lack of real-time data within that system and in some ways certification is due for an update which is based on a model driven by the 1990s – so the digitization of transactions which are permanent is really key here and it brings a new level of **transparency** to a largely paper based model which can be counterfeited. We are looking then two separate things; that are heavily certified apparel supply chains with its lack of efficiencies, lack of data sharing capacity, lack of real-time data, and possibility of counterfeit certificates within the system. The old, traditional system for track and trace was excel based or paper based and was not real-time, or responsive – it was maybe a very expensive system for data gathering and sharing so blockchain helps to create efficiencies in data gathering and sharing across organisations”.*

Out of this finding emerged another interesting question posed by interviewee XI, *“From a systems point of view – data sharing capabilities: there is a bigger problem in how to incentivize stakeholders, sometimes they don’t want to talk to each other. Then, how to incentivize different stakeholders?”*

The following are two accounts of how blockchain works within two different supply chains, one of safety-critical goods and the other of non-safety critical goods.

(Interviewee) *“The way our system is built, we have a digital profile for a physical product, very similar to NFTs. Once we have this, we then have key supply chain touchpoints – such as airports, warehouses, different locations where the product is stored both in transit and the product’s final-destination. We are tracking a physical product as it moves across various supply chain touchpoints and as it does, we capture*

all transactional data – which is as simple as ‘product purchase raised -purchase order received’ we send the product ‘the product has been received’ – we verify the products are in a good condition so there are all supply chain transactions, and we capture all of that data along the way”.

For interviewee **AS**, blockchain has been used for transparent ownership and status of trees throughout the supply chain – “*so by using the blockchain we can map physical trees to digital assets that have distinct ownership so if they are transferred that can be recorded and what we are calling NFTrees – you will know exactly where your trees are planted, whether they are still alive and you can see photos of the area so we’re using tokens to grant access to the tree data – so our first step is to digitise the tree counting, so we’re built a proprietary mobile application which is used to record tree-planting activities – so that includes planting numbers, photos, time-stamps, metadata, GPS coordinates – and since tree-planting is frequently done in remote areas away from cellular networks we have another application to collect the tree-planting data from devices – so when both these steps are done the tree-planting site is verified and signed off on and then submitted to the blockchain for immutable record keeping.*

Fundamentally we are talking about digitising data, I think more about than about the efficiency, storing data on-chain increases data accessibility, transparency, and accountability but when we are thinking of restoration and forestry – this is a land record for future generations to refer to and learn from it and benefit from it”.

Blockchain emerged further throughout as a value-added technology, creating value chains with stores of value embedded within the technological framework. The following excerpts illustrate how value emerged throughout the research and in doing so addresses the research question and supports the claim of blockchain as a **value-adding mechanism**.

Interviewee XI had this to contribute, *“The value added can be translated into the journey process – so you get this unique journey which becomes a personal experience so not only are you able to verify the sustainability data which makes you feel good but you also feel like you are part of the process and so we’ve seen tremendous interest from consumers but also luxury brands who ask how can we do something similar”*.

This translation refers to the capabilities blockchain provides through digital certifications and verifiable chain of custody, indisputable provenance, a journey which is unique to each product. Interviewee AS identified how the technology drives value for their brand: *“the fashion sustainability index claims that most brands don’t know their supply chain and have a partial view, so we are faced with many certifications which we have to take on face value without having transparency in supply chains, so it is extremely difficult to optimise our decision making or protect the brand. So, with XX we use the blockchain system to create that transparency to be able to drive value chain optimization”*.

Interviewee QM posed this question which the company considered: *“How could we elevate our product’s value and offer a whole new experience?”*

How to prove digital and physical ownership? These became key questions and addressed concerns of counterfeiting experienced by our consumers. Our solution allows for secure transference of ownership. We've developed the first crypto chip and blockchain secured solution. So, in a nutshell we embed crypto chips into products and enable these digital journeys. The interlinking relationship between digitisation and value has implications which suggests a further scope of research.

Technical Virtuosity

The technological turn evolved in a field of code to consider data-driven algorithmic technologies such as blockchain as a high-trust system of exchange; a decentralised ledger that enables a tamper-evident record of transactions promotion transparency while preserving anonymity. Within this field there exists a technical virtuosity requisite for the field to grow and share knowledge. According to interviewee **SF**, “we are in a moment in society where digital technologies are ubiquitous and so the one who codes and creates these systems somehow start building a sort of social power which perhaps wasn't so significant one or two decades ago”.

With technological revolutions as previously shown, the various stages of adoption involve the training and learning about the technology to effectively harness its capabilities. In comparison with the steam engine and the more recent information technology age, it holds the requisite of technical skills and knowledge for engagement in this field while there exist cultural intermediaries *in the know* helping to shape the narrative.

Fields, Bourdieu determined are ‘bounded spaces of action and interaction: they are present themselves “synchronically as structured spaces of positions (or posts) whose properties depend on their position within the spaces and which can be analysed independently of the characteristics of their occupants’ (Bourdieu 1993: 72 In Entwistle 2009: 31). The problem with Bourdieu’s field theory, is as Entwistle notes, is its bounded nature which is not sufficiently explained as to how fields relate to one another or how actors might be able to participate in multiple fields; hence Entwistle (2009: 36) finds the theory mechanistic and deterministic. Entwistle (ibid) contends the need for cultural intermediaries to ‘move beyond’ the field where one can draw on observations of consumers, markets, and persons outside the field.

It was further revealed that interviewee VI and colleagues working within this field found the language and concepts extremely complex for laypersons to comprehend. The following is an excerpt of this revelation: *“There is this kind of enchantment effect with the way people also talk about Satoshi Nakamoto, he was able to do something of extreme value, something that grants you this social status, and also with the other projects in the blockchain realm, you can see how certain projects would present some innovation, some technical novelty because they were trying to solve something and suddenly make possible something that was not possible before. Now you can have a smart contract to support a token that will be used in another platform, so for lay people this is a field of extreme complexity. And so we have this feeling that precisely this complexity was having a really enchanting effect, similar to encountering a robot, or*

seeing Sophia the robot speak and there is so much going on there, science and technology it becomes really fascinating to see how these creations come about. We are in a moment in society where digital technologies are ubiquitous and so the one who codes and creates these systems somehow starts building a sort of social power which perhaps wasn't so significant one or two decades ago".

This enchantment was propelled through the role of cultural intermediaries identified as evangelicals. For interviewee SF, evangelicals in the space have considerable technical knowledge, however there can be 'different types of people' dependent on the blockchain. Interesting was Entwistle's (2009) discussion on the concept of 'network lengthening' in relation to the field of fashion which determined that the 'circuit of value' within networks are fairly predictable for fashion, and similarly the cultural intermediaries within the blockchain technology field as interviewee EF contends, *"It can be someone who is really faithful about bitcoin as the great next thing, or it can be someone who has a start-up working with crypto currencies, and is also doing a lot of professional marketing, and so you will find people who are not so much into the technical side but maybe are coming from other backgrounds, like economics, or marketing or management, and end up in this world it is their empirical work place to work with these technologies, maybe they don't have to be technical experts, maybe they can have some domain over other issues – to be more financial, depends on the angle. I think most of them are reasonably expert about bitcoin and blockchain – they are for sure following the blockchain news daily, reading everything, and if you do that, it's a whole world but if you really follow it, if you're really into it and working with it you do have a*

lot of information in relation to the ley person as a person of experience. A lay person is not following blockchain news 24/7”.

Transparency

Transparency emerged as a prevalent outcome owed to blockchain-enabled supply chains within the research, which saw nearly every respondent correlate the word as a direct consequence of the technology. On its own, it was highlighted forty-six times as located within interview transcripts.

According to Interviewee BA, *“Blockchains can show a whole lotta data about supply chains... I think there is a point when a person goes to buy a white t-shirt that they sort of think well this looks nice, and that’s the cheapest, or whatever those steps are – because there is no way of comparing those other factors- if there were more data available then I think it would lead people to make better choices, or to think actually, the people who made these white t-shirts, none of them made anything and it was bad for the environment to make it. So, I think there is a massive need for transparency”.*

For interviewee TL, blockchain “can be used to create transparency and traceability in supply chains, which is a sustainability in itself. Supply chains are opaque and often rife with corrupt use and opportunities for counterfeiting”. Similarly, interviewee XIV identified the technology as a mechanism to create that transparency to be able to drive value chain optimization. “Curbing illicit practices by enabling visibility and external

transparency with shareholders and stakeholders to build a better supply chain, improving efficiencies and risks, and also better governance with the partners involved because of the blockchain technology and the information you can generate” (interviewee JS). In short, these new levels of transparency provided by implementation of the technology foster more efficiencies and improved communication from an organisational standpoint. Transparent emerged as a buzz word for most respondents working with the technology closely.

Digitisation

Like transparency and traceability, another prolific theme unearthed was the shift to digitisation – or as interview QM declared the firm’s mantra, “digitise or die”. There was unanimous consensus of this eminent transition toward digital. According to interviewee XIV, we need to shift the mindset into *“this ecosystem thinking, [previous] procurement in every sector has dehumanised, disaggregated us from our supply base, whereas blockchain technology offers the chance to reconnect the enterprise with its supply base, with its first and second tier right down to the original farmer”*.

This drastic digital transition is particularly notable within the luxury sector, with some respondents working directly with the technology discreetly offering clients in the luxury space. Interviewee QM developed a connected product placement, *“digitising the physical goods and giving it an on-ramp on that digital world whether it be a secure QR code or NFC chip – anything that can connect you to the digital world - what we do is manage the lifecycle of that physical tag to help mitigate risk in supply chains and increase efficiency in the supply chain and create an easier way for that O to O*

connection to create a direct consumer experience - We've been at this for about 5-6 years, we've seen the transition to digitising products are having on different products not just luxury, we worked with LVMH group and Kering group, and premium liquor brands but also apparel brands, many different spaces, so we're now live in over 168 countries globally working with a variety of companies".

Moreover luxury brands are discreetly tinkering with solutions utilising the technology for instance, interviewee QM had this to add: *I only can really expand on what we see in luxury it's really a digitise or die mantra, if you look at China as a microcosm of emergent markets that are growing like 48% last year quickly becoming the largest market – purchasing is being done by the younger generation, the millennials, gen Zs these are digital natives – essentially what we're seeing is that brands are being forced to adopt it faster by making a commitment to a comprehensive digital strategy of many different digital channels and crossing over that O to O space, **the offline and online** connection are winning – it's creating **new touchpoints** that are simplifying the shopping experience, it's **increasing loyalty and the directness and the consumer interaction** – and also at the same time, **reselling** – luxury products have an **extremely long life cycle** if compared to an MSMG product which can be on the shelf for 6 months. So, being able to use tokenization and digital technologies to reduce the risk of counterfeits and increasing high quality counterfeits which are difficult to differentiate are really important to leverage these new channels and services, mentioned to really fully take off – Take China for example, the only 5% of the market is resale compared to anywhere between 10-30% in other markets and the big reason for that is the lack of trust, that consumers have in being able to differentiate a real versus a fake product.*

Furthermore, respondents identified several digital enablers which address blockchain technology in supply chains, such as digital assets/twins, digital passports, digital identities. Whereas earlier research in the space centred around fintech uses and although still prevalent, the discussions are now focused on enterprise solutions and strategically

supply chain enhancement. Using the plethora of new technologies in conjunction with blockchain brands are allowed new opportunities to remould the organisation focused as interviewee QM comments away from a ‘transactional based business model toward a service-based business model’.

The new capabilities afforded through the technology indicate the improvement and efficiencies of information sharing in real-time. Blockchain is identified as the ‘missing link’ in supply chain optimization (Osterwalder and Pigneur, 2003). In answering questions on how to prove both digital and physical ownership, the technology emerged as a solution for secure transfer of ownership, predominantly seen with NFTs.

New Challenges

Interview **TP** posited, *“there are lots of projects going on, if you just go back to the dinner two years ago, when did we start those 2016 – if I look it has gone like that – in five years it's almost gone vertical, there are right now 7,950 projects listed on Coin market cap”*. This excerpt signifies the sheer growth magnitude within a short time indicative of a general-purpose technology. However, the concern with this noteworthy growth is as X later comments, ‘too much for any one person to process’. In fact, the researcher observes this conundrum faced by the excess of information available and dispersed daily relating to crypto.

Similarly, interviewee VI observed after taking a sabbatical from crypto that upon re-engaging with the field, she had difficulty following the news consequent to the complexity in language which had advanced in a matter of six months. This constant state of being ‘plugged in to the field’ poses significant implications for a new generation of crypto initiators, adopters and influencers all racing to digest and keep pace with the latest and crypto trend coin.

Similarly respondent XI commented on the need to demystify and de-tech the language for lay persons citing there is ‘still a long way to go’ – ‘if we continue to communicate in this secret language that ninety-nine percent of the population don’t understand then we, the one percent will reap all the rewards.’ New finance structures emerged as consistent in the interviews. *‘There is a particular type of financialization happening in this kind of realm. This realm, which has a critique behind it but finds a way or has a narrative that causes it to be put as a solution. Before you have the Internet as this world of information but still not the right place for value, it was not the right place to have a contract, to deal with property, money etc., blockchain is this new piece of code which allows that thing to take place on the Internet’* (Interviewee **SF**).

The following excerpts are taken from respondent **JF**, a regular correspondent for various London crypto news publications with a specialty in digital assets: *“The digital assets cover a very wide range of traditional assets and what I would argue are new assets, and the traditional assets mainly equities, bonds, commodities, even currencies, real estate, while the new type of assets seen coming through are things like intellectual property”*

(Interview IX), these ‘new’ assets which are identified as intellectual property rights, confirm previous discussions surrounding rights which correlate to this new ecosystem. For instance, O’ Dair (2019) identifies possibilities blockchain technology creates for the creative economy, particularly, for creators and artists, highlighting new business models and increased control for creators.

However, Interviewee JF cautions against this new world of rights and concerns regarding intellectual property rights... *“I think the real challenge with putting IP onto a blockchain is the type of blockchain” - “effectively some copyrights in some jurisdictions have legal effect and some are actually listed on a voluntary type of basis, and some are quasi-mandatory – so in Germany there is no public registry for protection whereas the Spanish have a voluntary one and the Americans have a quasi-mandatory one”* (Interview **JF**).

When it came to the topic of non-fungible tokens, respondent IX had this to say. *“NFTs come with a huge risk warning, and that is an NFT in some jurisdictions is treated as a crypto asset. As such you then need to be regulated, to actually handle, trade, sell, buy, exchange crypto assets – so potentially you’ve got some of these museums around the world – one just sold a Michelangelo digital image for \$170,000; you’ve got the Hermitage museum in Russia, a number of museums in the UK, now potentially those museums in the UK could find themselves at the wrong end of the law if, in theory you’re meant to be FCA crypto registered before you start trading in crypto assets”*.

Another perspective on new challenges concurrent with the technology and NFTs came from respondent VIII. *“The challenge though, is that I don’t know what’s going to happen when everything comes crumbling down which it inevitably will – right NFTs are going to plummet and it’s going to go down 95-97-99% - just like ICOs did – and then what will it persist”?*

“One of the problems you’ve got with regulations when it comes to digital assets, digital assets don’t respect national boundaries. Take online gaming has seen and sold more NFTs in value than any other brand is AxieInfinity, they’ve sold over \$2billion in dollars’ worth of NFTs, a company that was started less than a year and developed in Vietnam, 40% of its users are in the Philippines, where they’re trading these tokens, these NFTs in the name and the wording seems not to be very definitive but \$2 billion in dollars’ worth of let’s call them digital assets to be bought and sold and in the Philippines you’ve got some 75% unbanked – the average salary in the Philippines is \$100USD a month.

Whereas people trading on AxieInfinity can earn \$100 a day – there is a huge amount of money for these people and its surreptitiously dragging them into whole digital asset world which is a good and a bad thing – you now have scholarships being set up where let’s say you got into this six months ago and you paid maybe 10 or 20 dollars for one of these characters, I can’t afford now to spend \$500 on one so you can effectively lend me a couple of yours, you show me how to play the game, how to cash out, and for that you then take 30 or 40% of my earnings. So effectively, it’s like a Scholarship and I made a lot of money but you’re making money off the back of me, in terms of my time that I’m spending” (Interview **BA**).

Interviewee III noted a new challenge for luxury was adapting and digitally transforming through strategic partnerships with technology providers. According to interviewee III, the store is now 'experience driven, the store used to be the place where people would go and buy things, that's no longer the case, the store actually have a lot of core functions, you know during Covid retailers used stores as **dark stores**, it didn't mean that customers weren't shopping in them –they were used as fulfilment centres, to take calls - the store becomes an experience centre, where you come to get to know the brand but not necessarily the place where they make the purchase'. This challenge however can be interpreted as an opportunity for the stores to be re-invented, and as the above excerpt identifies to serve other core functions.

"It's no longer linear where I go to the store and make a purchase – it's kind of multichannel, consumers might be on Instagram then go into the store they take a photo of something and send it to the brand, they have a group call and then maybe they make a purchase – so the consumer is across all of these different channels, they are shopping in different ways and its important for retailers to be able to reach consumers wherever they are – wherever they want to shop. That's been a big trend in what we've seen come out across the last number of years'. 'Retailer realise the need for [them] to deliver consistently across channels, they have to have a consistent experience whether that's on mobile or desktop or store – you want to be able to be recognized by a brand – if I'm shopping on a website I can see my recent purchases, being able to deliver that consistent experience – omnichannel is a key theme to come out of things and will continue in that

direction – our social media channels are becoming shopping channels, you can shop on Instagram, maybe TikTok will soon have shoppable videos’. ‘It’s a really changing environment and your consumers are everywhere and you have to give them that consistent experience wherever they are – a trend that will undoubtedly continue”.

“On the consumer front is the way the technology can be used to give consumers transparency – I remember recently looking at a watch brand – *Bremont watches* – and they were discussing being able to see the product history from where it was created, who manufactured it, it kind of gave you that story behind the product and the give transparency – so I see the solution from the consumer facing front’ - ‘Probably blockchain can be the tech that really drives that type of transparency and make that more accessible so that when brands are talking about whether this is one of their values you can really see that it is, and I think that will hold them more accountable going forward’

‘A Wharton Professor, proposed STAR, Sustainability, Transparency, Authenticity and Re-Commerce, and again I think these are some themes that will be really important in retail going forward and I’m sure there will be many applications for blockchain around those themes’.

Non-Fungible Tokens and Luxury

Interviewee QM put forth the following with regards to early adoption of non-fungible tokens within the luxury sector: *What kind of problems do we solve? First, there is the problem of authenticity and transparency, when you buy a luxury product, wherever you*

buy it, of course you want to know if it is authentic or where it has been produced – [the company] exploring how to make the passport the door to allow this transparent vision – this authenticity and transparency is going to be stronger because it is mixed with an exceptional track and trace. We do not put on the physical identification because [the company] believes brands must be free to choose whatever they want to put or not on the product. A 50,000 Vacheron Constantin watch will never have any electrical component on it maybe a serial number and a picture, but for lower value product a 300 to 500 garment maybe a QR code will be enough, while for a 1000 or 5000 bag or dress or jacket maybe an NFC chip which could have crypto properties which would be interesting. We do not provide track and trace, only a digital passport to open the door - and is connected to any physical identifier on the product. The second thing this brings is this new notion of ownership and collection – you actually own this digital piece of value and at the same time you own the physical piece of value which is your object and thanks to that this object becomes not only an expense but an investment and with this investment you're going to take care of it longer, you will extend this life by giving a second life which is typical with luxury goods and maybe you can resell it or recycle and at the end what you're building is this new 3.0 customer relationship based on the trust of the ownership and authenticity of the product. Opens the possibility to advance loyalty programs, innovative services and exclusive experiences all based on this trust. This idea of portability also because NFTs today are for luxury brands going to be managed within some enclosed branded environment where tomorrow you can move them to a new wallet. So, the heart of bringing this solution is – we are working with many luxury brands – I would say that the most known being Breitling allows their customers to have

a digital passport for their product". This concept of the digital passport acting as the door to endless digital possibilities is noteworthy, furthermore the financialisation and value enabled through transfer of ownership is especially promising for future studies.

Another significant finding lay in the emergence of two strands of sustainable consumers: conscious consumers and collector consumers. Research found 59% of luxury customers in both primary and secondary markets ascribe sustainability as a key influence in purchasing behaviour (BCG.com). The latter has manifested through an exponential growth in non-fungible tokens in accordance with a boom in luxury auctions (BoF, 2022). Further, findings suggest this newly acquired 'crypto wealth' or wallet wealth is distinguished through the accumulation of non-fungible tokens within the ever-growing crypto communities. Within this demographic, the symbolic luxury goods are Bored Ape Yacht Club NFTs and high-valued cryptocurrencies such as bitcoin. Today, crypto initiators, influencers and investors alike ask the same question upon meeting a fellow crypto adopter, "What's in your wallet or crypto portfolio". This beckons instant judgement in the assessment of your standing, experience, and knowledge with the technology.

Interviewee BA on blockchain and luxury goods, *"What's interesting in the luxury goods area is how they've actually embraced the Metaverse, and this is very topical with what Facebook have renamed themselves and what I mean by there is if you look at the online gaming industry it's about \$180 billion dollars a year, and there are a number of people who spend a considerable amount of time in sort of a virtual, online world, and in that*

area there is research now showing that over 44% of people that are playing online games have made some form of purchase that is online, therefore some sort of digital purchase, whilst playing the game. What we're seeing is a number of luxury goods manufacturers now effectively selling their goods, their digital goods but with their brand online – because a number of their aspiring consumers are not actually walking down the high street, they're not actually going out and buying fashion magazines, but they're playing these games and they want get exposure to those people so that they'll buy them perhaps digitally online and then an NFT in theory, its unique, and that's one of the things the luxury goods industry is looking for that uniqueness so they can attach value and hopefully that will lead to sales in the physical world because people will be aware or exposure to some of those luxury brands”.

The metaverse refers to a new generation of virtual worlds, some of which are Sandbox and Decentraland, built on a blockchain (Dowling, 2021). To become a ‘netizen’ you buy LAND, coded pieces of the metaverse which translates into a plot of virtual land, for Decentraland its 16m x 16m (Ordano et al., 2017; Dowling, 2021). Dowling (2021) furthers the examination of NFT pricing as this study has identified a new type of asset market, digital assets with a significant size and scope. Following the peak of the market pricing with the NFT digital collectible by artist Mike Winkelmann for a sum of \$69.3 million (Crow and Ostroff, 2021) the market has witnessed extreme volatility and has been subject to scams resembling cryptocurrency. In fact, Dowling’s (2021) call for an examination of a connection between crypto currency and NFT pricing in addition to market manipulation has been found within the research findings. According to

Interviewee ES, “you have questions about how NFTs are being used in fraud already or things like you’ve got a lovely piece of art on the wall behind you, maybe you happen to be the artist of that or maybe not, or maybe it was my piece of art that I drew and you decide to sell this digital version of this art, and you get a lot of money you put it up for sale and nobody knows that it’s actually my piece of art and you get a lot of money in crypto and you cash it out and you’re like ‘thank you very much’ and then I say that was my bit of art. So, you’ve got things like that happening, where people are selling art that are not necessarily theirs. Things like revenge porno, you get a credit card details hacked or bought off the dark web or whatever and you decide to put on digitally on blockchain forever as an NFT so you’ve got cases of that happening and you know I expect law enforcement and regulators are sort of aware of that – so it’s just a question of working out how to deal with that same as any other.

Another perspective on the relevance of fraudulent behaviour and evidence of market manipulation within this vastly emergent market can be seen in the following excerpt from interviewee VIII. “I’ve invested heavily in the platforms that enable and create the technology that supports NFTs and the transfer of NFTs. I’m not buying any NFTs because they are overvalued – **a hyperbolic bubble** – there is no other way of looking at it. Maybe in the next bear market I’ll grab a few – but not right now people are spending literally upwards to a quarter of a million dollars for six words on a piece of paper. I’m not exaggerating, and I’ve seen proof of internal collisions – so there’s a lot of problems now. The way the NFTs are being minted and distributed and managed and being handled and being front run by advanced engineers who have an inside tip on being able

to extract stuff like the metadata ahead of everyone else so they know exactly which NFTs to bid on and they have the ability to mint them way ahead of anyone else. There is a lot of shadiness to them – so just exactly like the ICO bust of 2017- just 101 human behaviour psychology”.

This finding corresponds to interviewee JF attestations over issues of rights regarding digital assets as problematic and needs urgent attention from a regulatory standpoint. Further, interviewee JF highlighted what Dowling (2021) sought to discover whether the NFT market held any connections to wider asset markets, including stock and bond markets. The following excerpt illustrates this finding: *“from an investment perspective in the digital asset space and it’s very, very similar to stocks and shares, so if you go back and look at – you may have heard the expression – oh that share is caused on the big board – and its referring to penny mining shares that were quoted on the Vancouver stock exchange, which could easily go up by 40 or 50% a day. If you go then and come through and sort of look at in the 80s and 90s, we had the penny share boom, and then look around sort of the end of the 90s, into the new millennium and we had the dotcom boom, and I would argue if you look at the number of funds that you can invest your ISA, pension etc., there are more mutual funds than there are equities on the stock market”.* As elucidating as this excerpt is on the correlation of market dynamics and behaviour, more grounded research is requisite to consider these connections.

Interviewee XII perspective on non-fungible tokens within the luxury sector:

“I see a huge opportunity for NFTs and luxury goods for two factors; 1) there is a certain benefit of providing real assurance that the product you’re buying is real. If you go to Dolce & Gabbana store in London and you want to buy a bag for example, it is probably likely that if you go to a store in London it’s the real thing – but there is a huge market for copies and fakes and some of them are really good, so you’re now hearing of these projects where luxury designers and manufacturers are instead of competing with each other, are now working together to have this sort of digital way of checking their goods and showing them this is a real product – because they are sort of working together to go against the companies or the fakes, the fraudulent copies, so this is a huge market for that in such a longstanding problem of these products. For a while it used to be that you’d see a fake bag for example, and most people would quite quickly be able to tell the difference, but the copies are getting better and better – so there is a huge market there, and for the second hand or the vintage resale market, that’s a huge market – some people purchase their bags for their long term value, it’s the same thing if you’re buying a bag brand new from Dolce and Gabbana shop you’ll think it’s the real thing but if you buy a second hand vintage bag, how do you know it’s real while so many copies are fake? For that, I think it’s a huge and growing market. On the other side you have people going into the metaverse, and you’ve got everyone existing digitally. Give it a couple of years and it will be hell to get children to get out and play, or do sports – they’ll be stuck inside, glued to their bloody computers. Sorry for putting my opinions in there. And that’s just how things are going towards – the reality is things are going more online and there is even talk now that there is going to be this digital fashion industry where people will be buying digital versions of a D&G bag or a t-shirt, and they’ll have these digital only clothes that their

avatars will be wearing so they can take to their digital screen share to show one time on their Instagram, and you know, just to have these digital only clothes for their avatars. There is talk that that industry might surpass the value of traditional fashion and you know I do see these brands going into that and selling you digital only versions of their things, with a corresponding NFT with the added values of hype and marketing appeal, and you can show proof of origin”.

“NFT especially in the luxury goods sector is a huge implication, primarily for provenance and proof of authenticity, for both the first sale market and second hand or vintage market, and it might be that NFTs had some projects that were using blockchain to show the environmental impact of transporting food or the ingredients, or this lemon came from this lemon farmer, so the fashion market is barbaric, it’s the second biggest polluter in the world, it’s awful for the environment, it’s awful for humans, you’ve got statistically something like 50% of all clothing is made by slave or unwilling or forced labour, it’s a really, notoriously bad industry – so if there is a way and especially for the luxury fashion brands have more possibilities of doing this, because they are producing less goods which in theory are higher quality so shipments have more control, so they should be the ones initiating things like making sure that whoever in whatever factory makes that product, what can say that can’t go on an NFT as part of the digital record – you’ve got such and such person in such and such factory who you know spend X amount of hours making this product and paid X, and confirms that this is recyclable or organic cotton to produce this. So in some ways they should be the leaders in that and arguably there is no excuse to do that already and you also we see NFTs being used as a

slight marketing ploy at the moment, [she chuckles], you know every brand is launching an NFT just for the ability to have a press release launch about it to get a bit of ad space”.

Crypto Community

[06/06/2020, 16:14:43] +1 (929) XXX-XXXX: UK 🇬🇧 crypto community is the strongest and realest in the entire globe 🌍

[06/06/2020, 16:14:56] +1 (929) XXX-XXXX: I’m on every TG [telegram] group so I know 🤔

Interviewee SF observations on community within the blockchain ‘realm’: *“When people hear I am working on this they want to know, they want to get close to you, it’s about community. It is a community of people, all trying to understand”*.

Interviewee ES is a founder of the Crypto Curry Club which has monthly meetups within the London blockchain community. Furthermore, Interview XII was recently identified as a key influencer in the London blockchain space (Blockchain Report, 2021). This is what she had to say about the London crypto community: *“Since lockdown the community has grown a lot, it’s just grown much more internationally”* – *“We’ve got a large community with existing contacts we had, hundreds of crypto start-ups are working in the space and they bring in so many other contacts, also more traditional firms that are more active – looking at crypto and wanting to know more about crypto, so that’s really exciting to see the ecosystem grow”*.

“There are communities formed around groups that are opening crypto to artists and creators to the bigger population apart from programmers. There are formations of urban cultures, the NY event, NFTNYC, but it is still very high risk, high volatility”

(Interviewee ES).

Other notable findings included the exposure of fraud and scams within the blockchain ecosystem. Interviewee ES provided the following anecdote of fraudulent activity ensuant in the field: “Missing crypto queen, they thought they’d stolen about 4 billion dollars from people, turns out it was more like 25 billion dollars – what is incredible/crazy/sad is not just that one, the ONE COIN was the first scam sort of merged multilevel marketing with crypto and you’ve got to give it to them – it’s quite a smart move if you’re thinking from the mindset of a Ponzi scheme originator, but you’ve crypto everybody gets so excited about these brilliant salespeople promoting their project, and effectively selling money that’s being printed out of thin air – you’re just selling easy money – they made all of these claims, they made all of these promises to people to get rich if they bought these coins they’ll double in quantity – but then you have multilevel marketing which is, I still find it inexplicable how or why it’s legal – this way of selling things – you might be familiar with this, you’ve got these high commissioned payouts for anybody who buys off you and so forth and down the line you’ve got this really big commissioned structures and big commission payout schemes for anybody who buys these packages of crypto coins, and so forth. What was really sad about the One Coin is, although as a Ponzi scheme they start they payout so innocent people really fall for it and

believers, they go to all their friends and their families and they made a profit so they spread it and so you've got this whole grey area with who's the victim and who sort of promoted the scam, because you have this whole range of people who really believed it and was good at spreading it to their friends – people trusted their friends, they believed them – of course this huge multi-level marketing network by these professional scammers who clearly knew exactly what they were doing – scam to scam or project to project, and selling these packages and getting huge commissions. People who were promoting it were taking home around 100 million dollars in commission profit just for collaborating on a scam so big- that's the main one that was most famous largely due to the sheer volume and due to the BBC podcast series which has been amazing in helping raise awareness, but what that started there has been a whole series of copycat scams of other Ponzi schemes, which have basically taken the same model or multilevel marketing and huge commission pay-out structures and these incentive programmes and even selling 'educational packages', a farce or front for selling crypto tokens or whatever they were purporting to sell. So the one coin was really the role model for this series of copycat scams, which have used the same model and spread them like wildfire. What is so bad with the multilevel marketing structures is not just the scammers promoting it but other people who sort of believe it and who then promote it. If you go into the chat rooms run by the community, you still got people who really believe it, who really fall for it – with one coin for example, it's been about four years since before law enforcement caught on to it and say 'hey, be careful, this is a scam', and started arresting the founders, it's been years and years of court cases. It's pretty much public knowledge that this is a scam, people are being arrested, this is bad, people are losing money, and yet there are still

people promoting it and still people can believe it and fall for it and lose more money, still – it just shows how big and pervasive they get and how good the scams are at going on and tricking people”.

CHAPTER NINE

FINDINGS AND FUTURE RECOMMENDATIONS

Findings and Discussion

This research sought to address the impact of counterfeiting on luxury brands through the provision of a well-grounded and comprehensive account of counterfeiting and the identified anti-counterfeiting solution; blockchain technology. The study addressed pertinent questions regarding luxury and its relationship to counterfeiting through a politico-economic lens which identified vast implications to the under-researched area of state and power relations and its correlation to the illicit industry. This research serves as a window into the under-explored dichotomy which demands further scholarly attention.

Despite significant disruptions to the research attributed to unforeseen occurrences the research found the aims met. It can be ascertained that a thorough examination found luxury brands have shifted perceptions towards counterfeits and adopted a stance of ‘transparency’ and ‘circularity’ in accordance with the *Zeitgeist* (Thomas, 2019). This stance is echoed by a trickle-down effect by key players within various sectors, e.g., shipping and logistics (IBM TradeLens) and AURA Consortium (LVMH et al). Blockchain-enabled supply chains have been found to deliver trust, transparency, and traceability, and hence transforms supply chains into data-driven value chains. These blockchain embedded optimised chains foster new capabilities which create overall organisational synergies and efficiencies. As an anti-counterfeiting solution, the

technology provides luxury brands an opportunity to transcend from a transaction-based business model to one driven by experiences and services (Interviewee XI, Interviewee III, Interviewee XIV and Interviewee VIII). As interviewee III envisaged the future of retail as ‘experience driven’ where the store is repurposed to serve other ‘core’ functions.

For interviewee XI, experience with working closely with the technology has found six critical factors for success: “capabilities, collaboration, technological credence, supply chain practices, leadership and governance of traceability efforts and information stewardship”. However, caution must be paid to the rapidly growing technology which is yet to be regulated and understood on a scale which enables mass adoption. As outlined in the previous sections, this new realm is accompanied with a range of questions regarding its governance and regulation. The paradox lies in the environment necessary for the maturation of the technology is one of deregulation and decentralisation.

However, drastic decentralisation has been rejected for a hybrid of decentralisation and centralisation, particularly with enterprise solutions and companies newly introduced to the technology. This allows for companies to tinker with the tech and dip their toes before making the full plunge.

Blockchain CULTure

From a Durkheimian perspective which finds objects and media do not put an ‘end to the social’ but otherwise mediates concrete sociality and further enlarges the crowd (Baudrillard, 1983). According to Chandler (2002) codes may be interpreted and

referential; and encoded through cues which Chandler concurs is part of a ‘metalingual function of signs’(ibid). “Codes help to guide us to what Stuart Hall, calls a “preferred reading” and Eco “aberrant decoding” (Hall, 1980: 134 In Chandler, 2002: 158). Codes and cues within the blockchain ecosystem confirm to cultic attributes through a collective deification of the blockchain heroes offering technology as the solution to a better future. These blocktopian social engineers in the age of cryptography suggest a consistent theme of salvation. The tendency toward a salvationist approach to building cohesive in-groups and identifying out-groups through the locating of enemies, e.g. governments and apparent 1%, is consistent with immersive psychological studies of control. They evangelize and extol the surrealist potential of block-tech through the possibility of transformation and liberation. Comparable to the art movement, the crypto prophesiers embolden cultic thinking within these constructed in-groups entrenched in anarchic beliefs which challenge systems of power and privilege, division, and exclusion.

Along this vein, this theory of mediation can be understood through the examination of aura in conceptualising a decentralised and mediated form of sociality and the formation of the mediated cult. Benjamin’s profoundly prescient essay held that ‘aura’ and ‘cult’ did not depend on the other, however when aura fades it gives way to a mediated cult which finds circulating objects attain ‘cult value’. The explosion of the NFT market has unveiled significant implications which echo Benjamin’s contention of a ‘politicisation of aesthetics’ ensuant of technological development. The open-source code and intrinsic decentralised capabilities furnished by blockchain technology considers this new aesthetic gives way to democratic structures, as evidenced with fractionalisation and

financial inclusion through this insertion of the technology to the masses. In this reality, blockchain is the medium to this new form of ‘innervation’ where the interplay between the human and technological creates a new socialisation of the man (Schiermer, 2013). This new media, hence, will cause a fixed ‘opening’ or ‘loosening’ [Auflockerung] of the social (Benjamin, 1983).

However, the problem with this understanding is not the destruction of the aura but the enhancement through the mediatized rituals which serve the cult value. For Schiermer (2013) this cultic sociality has two implications: the new social technologies make imitational dynamics at an unprecedented speed or scale while also making surveillance and control of mass segments of the population possible in pursuits of political or commercial gain.

Within the realm of the technology has emerged attributes and characteristics found within subcultural group formations. Subcultures, as Entwistle (2000: 115) finds ‘use dress to mark out differences of taste, lifestyle and identity’. The role of sartorial choice within the communities and over the observatory period was found to be important markers or cultural cues. Semiotics within block-tech culture suggest an importance placed on signs and hidden meanings; in keeping with the group’s cryptographic foundations. Thornton’s work (1995), on ‘subcultural capital’, involves an interpretation and understanding of subcultural style, and serves to inform these notions of grouping and gathering through subcultural affiliation. Ascribing to a hacktivist tribe, technical actors within the realm demonstrated their subcultural capital through the adornment of t-

shirts (typically a technology firm provider branded shirt) which served to signal and differentiate other actors within the field. For instance, on the way back from conducting field work the researcher wearing a TRACR (a diamond tracing blockchain technology firm) t-shirt was instantly recognised by members of the community, where the garment served as a tool to get ‘in the door’ and in doing so validated the person as a child of the blockchain revolution. Further, this sartorial choice contradicts previous notions of suitable office wear and work culture which post-pandemic will be interesting to observe in the future.

In pursuit of the research aims, this study started an exploratory journey through the lens of counterfeiting as a social phenomenon. Along this journey the research encountered a potential anti-counterfeiting solution called blockchain. The blockchain, in early 2018, an even newer concept than it is today, had already made significant headway in technological circles. Authors like Popper (2015) and Mezrich (2019) identified the field of crypto code as this enchanting matrix-like world where *code is law*, computational power is paramount to success and people are making money. The hype around blockchain is by association to the cryptocurrency bitcoin. However, blockchains are integral to this new world or realm (Interview VI). In an examination of blockchain as an anti-counterfeiting solution, it can be proposed that blockchain’s intrinsic features make it an ideal solution to reduce counterfeits of luxury goods. Furthermore, it was identified that the blockchain utilisation of non-fungible tokens can assuredly add value to luxury brands and enhance the aura around the luxury goods. “*A diamond DNA – so you can take a scan of this diamond and so well there is this diamond and it came from this mine,*

it was mined at this time and you can see it wasn't a blood diamond, and this is this diamond on record so if I want to sell you a diamond, at the moment, how do I know where it's from? How do I know you didn't steal it, or whatever - there is a way to see this is a diamond and you've bought it". Solving issues of transparency and provenance blockchain use cases are increasing daily, with an accelerated growth in industry. Ripple effect, or as Interviewee BA said, 'FOMO – fear of missing out' -A popular trend seemed to be companies aligning with the technology for fear of missing out. According to interviewee BA, there lies a huge con in blockchain for its own sake - "it's a novel and popular technology which has garnered significant media attention and companies which announce blockchain see a rise in stock. [Interviewee BA saw a statistic that in 2017 out of some 26,000 pilots started something like only 8% survived which is akin to blockchain for its own sake".

The unprecedented collaboration between competitors, the Global Luxury Consortium Blockchain, which sees Richemont and LVMH working together to deliver more transparency to end-consumers. If brands learnt anything it's not to ignore the online communities and shifts in consumer behaviour– a growing interest in blockchain and its enabling of traceable and transparent supply chains, have solved issues which were identified in the literature review as leading to counterfeiting. Provenance and Traceability emerged as salient use cases within the luxury sector which harness the technology to enhance their product and optimise transparency. Provenance and traceability it can be surmised adds value to the luxury item, which assures chain of

custody, enabling digital and physical journeys. “It’s about telling a story now, the consumer wants to be thrilled and engaged” (interviewee III).

For interviewee BS, it is important to “spend time in what you’re interested in, not just the crypto assets but the technology, what is blockchain technology doing for the luxury goods industry – how are they using it for provenance, tracking and tracing, for transparency, how is it being used in the industry and not only will people find that a little more engaging, and they’ll understand the challenges and the opportunities, but from that they will hopefully have a much better appreciation to be able to spot the possible opportunities they can invest in – instead of just seeing what Burberry has recently done with an NFT”.

The utilisation of community and mediatized rituals through conferences and hackathons have been identified as integral in building the narrative of the technology that will ‘save us all’. In fact, a podcast titled *Blockchain won’t save the world, we will*, is hosted by a qualified informer in the blockchain ecosystem. Day’s podcast tends to detach itself from the overhype and enchantment surrounding the technology and instead focuses on pertinent issues to adoption, use cases and how the technology is being used and to what ends. This ‘hype’ identified by many participants is common in the space and one new entrant in the space needs to heed caution.

Amidst the hype and over-hype is the need to drown out the noise in order to focus on proven solutions and proof of concept cases. Blockchain evangelists seek to sermonise

and preach to the blockchain pious in furthering the goal of driving mass adoption. For instance, the researcher when approached by a head-hunter was advised that to get the job it was better to ‘evangelise’ than ‘criticise’ the technology which came naturally as an academic.

Another major finding was the emergence of crypto scams most alarming when revealed by Interviewee XII, who identified the multilevel marketing and high commission payout structures as key in identifying a Ponzi scheme. What is evident is that it is very early doors for the technology and as such incidents like Mt. Gox, and Silk Road, One Coin, are only going to increase as the technology matures so will Moore’s outlaws.

Furthermore, technicalisation and digitalisation appeared as overarching consequences of this technological advancement. Within this field of code and computational science a certain technical virtuosity emerges translating to a social power within this technological milieu.

According to Interviewee JF, persons are still now convinced it is not a scam despite it being public knowledge. Furthermore, the issue of copyrights and intellectual property rights regarding the technology’s adoption is a significant finding, as it was previously not revealed within the literature review. The researcher opened a discussion on rights in pursuit of examining provenance, which the researcher finds may help to inform regulatory considerations of crypto assets or digital assets, of which tokens fall under (NFTs). It was uncovered that as the researcher previously identified, there are no experts in the space due to the newness of the technology, it is still ‘a work in progress’. Actors

are building communities and engaging with the technology to better understand together.

“I haven’t seen anybody who understands what’s going on on a global scale – I’ve only seen experts in tiny, little niches – tiny chains or tiny projects or specific projects”

(Interviewee TP).

The emergence of the technology has seen tremendous growth in groups forming around it – bitcoin maximalists, bitcoin mining pools, meetups, online chat forums and threads – importance paid to community building was identified within companies and the ecosystem. According to Interviewee BA, “You have some people in particular, the hacker spaces and maker spaces, type of people they are using and they are curious but they have a lot more – how can I say – for them it is clear about what they do not want to reproduce about the financial system right, so there is an effort to use this technology and not reproduce the system as it were, but for many other projects I think that it is ok to reproduce the system as long as you can somehow repurpose it to something else, so not just make the rich richer, but the idea of distribution that you can use all of these tool and we can use them as well, so that’s the good news”.

Non-Fungible Tokens

This novel application of the technology is worth further examination consequent to the rapidly growing emergent market. Impossible to ignore during the research, the application emerged as a salient, and profound revelation within the research framework.

The popularity of digital art collectibles brings with it a range of issues from commodification to financialization. These new financial structures enabled through blockchain, such as fractionalisation offer the opportunity to challenge established perceptions on private property as evidenced with the conversations on digital property rights and intellectual property on blockchains. Rozendaal (2013) raises relevant questions relating to digital art, and this study determines further questions are raised regarding physical art and how it is managed, commodified, and financialized in this new realm. Further, the entrance of the technology paves the way for the new concept of art as Benjamin (1983) presaged a radical and comprehensive ‘change of function of art’ bringing art ‘close’ to the masses (Benjamin, 1983 In Schiermer, 2013: 196). This new art can be perceived in the form of digital collectibles seen with NFTs which allow for circularity through the technological capabilities afforded by the medium: blockchain.

Limitations with the technology have been found, as evidenced in the following anecdote by interviewee XI: “blockchain may give credibility to false information, whatever weak point there was anywhere in the supply chain. The technology itself is also quite limited – take manuka honey where a majority on the market is fake, imagine putting manuka honey on a blockchain”. Other fears and heeds of caution have been acknowledged throughout this investigation and highlighted in preceding chapters. However, the research finds this paradigm shift indicative of the emergence of the technology which serves the functions as identified in a general-purpose technology.

The creative destructive force of disintermediation has been met with much criticism particularly financial institutions which have recently changed their tune from utter condemnation to enthusiastic acceptance. Just a few days ago JP Morgan became the first bank to open in the metaverse where you can shop with crypto and NFTs, this news comes amidst plans to introduce quantum computing production (EuroNews.com; Reuters.com). This new world of risk and reward in the digital realm of metaverses challenges conceptions of property relations with the blurring of the physical and digital as addressed by interviewee IX discussion on rights and IP. Another respondent held the view that NFTs were problematic to issues of physical ownership, “Fractional ownership of art cannot apply to the physical art world – if it is fractionally owned it disallows anyone from selling the entire artwork and who wants to buy a piece of art”.

CONCLUSION

“It’s that simple; the process is the solution. Having a better process to deal with unstructured data; data in emails, on servers, in paper form, filed away with poor traceability is the key to mounting a more effective legal offence against counterfeiters” (Anti-counterfeit Activities, 2018). Block-tech has emerged throughout this exploratory study as a salient solution to combat counterfeiting and enhance data capturing and efficient storage on supply chains.

The counterfeiting of non-safety critical goods such as luxury goods has emerged throughout this study as a prolific market, combining both grey and copycat markets which capitalise on symbolic luxury connotations for consumers. E-commerce platforms have proliferated in wake of the COVID-19 pandemic becoming hot spots for fake luxury goods. Analytics firm Ghost Data found twenty-six thousand (26,000) active accounts selling counterfeit luxury goods on Facebook, while Instagram had twenty thousand (20,000) of such accounts, according to a study conducted late October, 2021. Despite anti-counterfeiting measures deployed by luxury brands, the proliferation of counterfeit products continues to grow, remaining a key challenge for e-commerce platforms and luxury brands alike. Heim and Hopper (2021: 4) highlight a main theme of ‘innovative or re-invented business models’ emergent in grey literature which suggests a triangular configured collaboration among technology providers, luxury goods firms and sustainability organisations. This configuration is typically motivated by early adopters reliant on cross-industry collaboration to drive adoption. Further, the technical virtuosity

requisite for the successful deployment of the technology is crucial which are limited in the capabilities of fashion firms (Volpicelli, 2021).

In contrast, the new wave of crypto wealth has catalysed the advent of collectors, interested in the acquisition of collectibles: fashion, digital art, NFTs, trading cards, comics, luxury goods. The value of a collectible as a form occurs when the object transcends its utility purpose. For Bourdieu, collecting adds symbolic 'distinction'. This burgeoning collector market is substantiated according to findings which suggest the secondary sales market value and resaleability value supersede the initial investment. Similarly, a recent boom in luxury auction and non-fungible tokens is supported by statistical evidence of a paradigm shift toward circularity. Moreover, the facilitation of the technology toward an assets immutable provenance creates a consumer culture predicated on the exchange of goods in a circular fashion. Enhanced product lifecycle management has resulted in innovation and re-invented business models which include resale, renting, P2P sharing, take-back and trade-in schemes toward an ecosystem regeneration (Lewis et al., 2017; Rejeb and Rejeb, 2020). However, despite this shift, blockchain-enabled supply chains within the luxury sector have been majorly identified as conforming to a permissioned and/or private blockchain architecture prohibiting total visibility to stakeholders. Heim and Hopper (2021) and this research find scarce recommendations offered for addressing this challenge. Despite the challenge posed by digitally transformative technology implementation, the benefits far outperform the associated risks and concerns for improved business operations with enhanced, previously unattained levels of systems transparency.

This research thus determines the following proposition: “***Blockchain technology builds high-trust relations***”. Blockchain technology has been found to support validated data capturing and sharing capabilities which fostering digital accountability, a digital social capital. This capital creates a high-trust ecosystem supported by a technological configuration built on decentralisation. Low-trust systems lack accountability which block-tech is found to solve through the enhancement of supply chains in promoting transparency. Block-tech as a high-trust accounting system of exchange threatens to shatter the foundations which shadow economies tend to proliferate, fractured and murky supply chains. Findings which position Italy as a low trust society and which evidence shows through counterfeit criminal channels of organized crime and tendency toward clientelism fosters a disillusionment with trust and normalisation of mistrust. Blockchain technology supports anti-criminogenic capabilities through timestamping and tamper-evident distributed ledger technology; in essence it supports high-trust relations sans an intermediary. The blockchainer as hero is consistent with hacktivism, embedded in the narrative, linguistics and codes supported by the ecosystem. The collective dream is a blockoptia of meta-worlds which relate the physical to the digital in a seamless co-existence; virtual gamification through mixed reality. Yet, amongst the respondents a ‘wokeness’ is resonant which must see the technology through a critical lens, according to interviewer P, “Bitcoin isn’t money, it’s tech”.

As this study was on-going and endured a significant disruption via the COVID-19 pandemic, it meant that the researcher was offered the opportunity to witness the close

effects of the leapfrogging of the technology. The hard shift toward digital marketplaces, and e-commerce platforms facilitated the trialling of new technologies as evidenced in the vaccine blockchain-enabled supply chains. This has led to further use cases, further pilot projects, further overall experience with the technology and has undoubtedly altered the landscape as it stood pre-COVID. Despite the vociferous proclamation of blockchain technology as one of the most disruptive technology trends since the early days of the Internet (Wall Street Journal) most firms have yet to truly discover the immense benefits which the technology can provide or they simply "don't believe in it".

Blockchain ensued as a serendipitous occurrence within this study which sought to examine counterfeiting of luxury goods and in doing so stumbled across a robust anti-counterfeiting solution. However, the technology emerged not as an apparatus or instrument but as symbolic and a 'moreness', a representation of an alternate and unknown. Resonant in hacktivism, the aura of a sign or symbol, or in the case of blockchain, a burgeoning community part of the culture and participating in the mediated rituals. In fact, recent conversations with friends have found these rituals have permeated lay persons; where a friend placed on furlough consequent to the pandemic started tinkering with NFTs and has now quit [his] job and instead is plugged into the metaverse participating by buying, selling and minting NFTs. What is clear in this scenario is that the choice toward this data-led transformation has proved quite lucrative for many in driving adoption of the technology. According to interviewee V, "*if markets keep tumbling, the whole crypto dream could be on the rocks, but as they say hold on*

tight for the ride – we know downturns always turn back as we will find another thing to schlock until there is GOD forbid CBDC”.

Data-driven algorithmic technologies pose serious concerns and questions over current conceptualisations of the social and which further scholarly attention deserves attention. The enhancement of the store and shift toward service-based and experience-driven was revealed as new processes associated with technological optimisation. Luxury brands adoption of the technology has been focused on proving traceability and provenance which is found to add value to the brand. Hence, it stands that the technology may be perceived as a **value-added technology**. However, the integration of blockchain solutions is case dependent and hinges on demonstrable financial benefits. As interviewee XI found that blockchain for its own sake is not the right approach.

In summation and in pursuit of the research question, does blockchain prove an effective anti-counterfeiting solution for Veblen goods? Based on a grounded approach it was found that the technology is a **proven and effective anti-counterfeiting solution**.

Despite much resistance faced during the embryonic phase, the technology has achieved much success and matured through a rapidly developing environment. Recent statistical data see a hike in prices of luxury goods which brands are tinkering with the technology, and although the study does not seek to assume a correlation, the long-term ROI has in a short time proven lucrative. The findings that new consumer segments with high purchasing power are predominantly digital natives is illuminating and would serve to further studies examining these emergent markets and bubbles. What has surfaced

however is the thirst and quest for knowledge is there and in such a frenzied fashion it makes digestion difficult as interviewee X declared, “too much for anyone to keep up with”.

In setting out to provide a thorough and grounded discussion of counterfeiting and its potential elimination through blockchain, the research uncovered vast potentials as well as disquieting implications which need to be further addressed and examined. In face of a global pandemic and medical vicissitudes, the research undoubtedly suffered reducing the number of interviewees and the implication of the Zoom conferencing system further problematised data collection.

As the research was exploratory further areas of research have been outlined throughout this thesis in the examination of counterfeiting, significant areas of future research have presented particularly the discovery of blockchain technology. The world as we know it has changed and continues to do so at an alarming rate. The technological implications of blockchain have given way to discussions of money which is constructed and as such can be unpacked and deconstructed, or in this case decentralised. A zeitgeist of digital natives has propelled advancements in social enterprise blockchain-led projects, and the technological convergence is significant of a shift toward circularity with a focus on sustainability. Provenance, a term previously reserved for the art world has become synonymous with the technology and creates value through a chronological and immutable digital record, or as one respondent called, “*a door to transparency*”. Anti-counterfeiting relies on this indisputable chain of custody, which is facilitated by the

technology, yet a word of caution as to what type of blockchain and what is stored on the blockchain which it was unearthed is problematic to IP. Further, therein lies the rub; that the very thing we set out to solve might not be the egalitarian solution we hope. Yet, while we hope the words of Tennyson are reminded - “Beat, happy stars, timing with things below, beat with my heart more blest than heart can tell. Blest, but for some dark undercurrent of woe that seems to draw - *but it shall not be so; let all be well, be well*” (Tennyson, 1837 In Maud).

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APPENDIX

REFLECTIONS

With COVID-19 brought serious disruption to the research in a number of ways. In processing reflections regarding this study, it was found that the study which commenced in one direction of inquiry and resulted in an entirely different and new area of enquiry. The research previously examined counterfeiting as a social phenomenon and identified much of the academic focus toward consumer studies, which led the research to investigate industry supported solutions. On that journey, the researcher encountered blockchain technology. Having no prior technological understanding of a vastly technical product, blockchain proved challenging for a number of reasons. First, the researcher participated in a deep dive of the technology through sources like Medium, CoinTelegraph, Blockchain.com and Blockchain101.com, to better understand the technology. Even then the landscape was already ripe for the taking with a sudden infusion of interest following recent price peaks of the highly volatile and speculative crypto currency bitcoin. However, once determined to understand the technology from a didactic perspective, would prove advantageous to the research framework and underpinnings. The researcher gained further knowledge and insight into the inside workings of the London blockchain/crypto community, via networking and conference events.

In lieu of this newfound technological discovery, the research encountered experienced feelings consistent with impostor syndrome and felt more like an outlier throughout the

ethnographic fieldwork. Consequent to the researcher's limited technical understanding of the technology, not having a company affiliation presented some challenges in being taken seriously. The impostor syndrome was felt more at conferences where persons were judged by their name tags. If you didn't belong to a well-known company in the space, you quickly lost attention. As time moved on the revolution lost its lustre. Transgressing into debates about protocols and consensus mechanisms, each one vying to be the superior in terms of scalability and TPS. EOS was ruthless in their display of pomp and power over the eager dev crowd. Hack-a-thons' the researcher admits would prove a useful case study to investigate the practices and rituals. Further, the impostor syndrome affected the researcher's ability to find a clear voice, amongst all of the noise. The need for qualified informers is paramount to the success of the technology's adoption. The disruption of COVID-19 meant that the research was unable to progress fulfilling its predetermined observation period, which was shifted to online observations.

Despite the hindrances and disruptions encountered during the collection process the researcher acknowledges the strategy of social shrinkage as Goffman (2014: 237) finds 'blending into the background to become as small a presence as possible' will benefit the research and offer the value of diffident observation. Epistemologically, however, embodied knowledge can offer new and fresh insights as found through the unearthing of booming NFTs, a prevalence of Moore's outlaws, and power relations in a technological race. On the other hand, the technological adoption has made significant headway and leapfrogged following the pandemic. When this study commenced the IBM TradeLens project had just been announced with an initial roadmap trajectory to optimise shipping

information pipeline and improve paperless trade. To gauge the progress, it is important to consider results in this case the platform saw a 90% decrease in documents and saved \$5.4M per ultra-container ship. TradeLens has set a precedent for others to follow which achieved all the projected aims: enable instant and secure access to end-to-end supply chain data, permissioned blockchain facilitates visibility and insights into supply chain, digitise documents and secure immutable transactions to logistics (TradeLens).

While in the field the researcher encountered a dangerous situation which urges caution must be paid to new fields or inquiry where the actors stem from various disciplines and backgrounds. An intersectional approach should be considered when selecting actors to engage within the field. Moreover, due to the rapidly growing and vastly altered blockchain landscape from the start of the study till date of completion the researcher admits some reticence and fear of presenting outdated data which may be deemed irrelevant. In contrast, attributed to any novel technology the learning period suggests room for growth and further comprehension.

In hindsight the researcher admits ethnography posed numerous challenges as a methodological mode of inquiry. Stemming from an anthropological backdrop, successful studies led through participant observation favour lengthier durations of conducting research in the field. For instance, sociologist Patricia Fernández-Kelly's (2015) ethnography *The Hero's Flight* is a product of 'nearly ten years' of sustained interaction in the field (Harrison, 2018). Further challenges lay in the data analysis process, which was amassed through multiple sources of collection, which characterise the lived world with all its inconsistencies and disarray (Law, 2004; Harrison, 2018).

Further research has been highlighted to examine the gender relations within the burgeoning blockchain sectors, the notable shift toward more female inclusion was noted toward the end of the research and power dynamics indicative of industry events are noteworthy and opens future opportunities for academic inquiry.

The researcher suffered major setbacks to the research and disruptions consequent to medical related issues. A series of medical issues culminating in mental health related issues became apparent. However, the researcher was permitted time to recover until the situation was manageable for research to progress. Important to note, this disruption occurred late 2019 prior to the pandemic which further exacerbated ongoing issues. The researcher in 2020 was diagnosed with a difficult prognosis which meant surgery was mandatory, as a result the researcher was unable to perform research duties and suffered from bouts of blocks to writing. As the effects of the pandemic were unforeseen the researcher wishes to acknowledge the support and guidance offered by the first supervisor throughout the entirety of this study. Without which, the researcher is confident the thesis would have been further delayed. The supervisor can offer psychological support for students to ease feelings of helplessness and frustration and to persevere when embattled with vicissitude (Crisp and Cruz, 2009). However, Hagenauer and Volet (2014) contend the impact of this relationship on the student's well-being in postgraduate degrees remains under-researched. Previous studies tend to focus on the student-teacher interaction and neglect the quality of said relationship (ibid).

APPENDIX TWO

Figure 1: Participant Information Sheet



PARTICIPANT INFORMATION SHEET

My name is Mandy Lall. I am a doctoral researcher at the Department of Sociology, City University of London.

The title of my thesis is: In Blockchain We Trust? An Anti-Counterfeiting solution

This study will seek to analyse and measure the viability of blockchain technology as an anti-counterfeit solution within supply chain systems.

What will I have to do if I take part?

If you agree to take part, you will be asked to **participate in an interview** on the thesis subject, **by answering a series of questions asked by the researcher.**

The **interview** will last for approximately 60 - 90 minutes.

Do I have to take part?

Your participation in my study is voluntary. If you decide to participate, you can withdraw from the study at any time. You do not have to give a reason and no pressure will be put on you to try and change your mind.

If I agree to take part what happens to what I say?

All the information you give us **will be confidential** and used for the purposes of this study only. Data will be securely stored in a **password-protected laptop and locked cupboards**. The data will be destroyed after the completion of the dissertation

The final dissertation will be seen by university staff and may also be accessed by other students in the future.

To ensure anonymity, you will not be identified at any point in the dissertation, unless you give your explicit consent.

If anything you said in the interview **on your experiences with blockchain technology** is quoted, it will be identified only by a pseudonym.

What do I do now?

If you agree to take part, please complete and sign the consent form.

If you have any further questions, or you would like to know more about this study, please contact me at the details given below.

What if I have more questions or there is a problem?

If you have any problems, concerns or questions about this study, you should first speak to the researcher or the supervisor of this project. If you remain unhappy and wish to complain formally, you can do this through the University complaints procedure.

**Contact Details:
supervisor**

Mandy Lall ; Mandy.lall.1@city.ac.uk

Contact Details of

*Chris Rojek – Professor at City
University Sociology Department.*

What if there is a problem?

If you remain unhappy and wish to complain formally, you can do this through the University complaints procedure. To complain about the study, you need to phone 020 7040 3040. You can then ask to speak to the Secretary to Senate Research Ethics Committee.

You could also write to the Secretary at:

Anna Ramberg
Secretary to Senate Research Ethics Committee
Research Office, E214
City University London
Northampton Square
London
EC1V 0HB
Email: Anna.Ramberg.1@city.ac.uk

Who has reviewed the study?

This study has been approved by the Department of Sociology Ethics Committee, City University London



CONSENT FORM

STUDY: In Blockchain We Trust? An Anti-Counterfeiting Solution

RESEARCHER: Mandy Lall **CONTACT INFO:** 2, 218 Haverstock Hill, NW3 2AE

Please tick as appropriate

YES

NO

1. I have read and understand the project information sheet.

☐☐

2. I agree to take part in the above study.

☐☐

3. I understand this will involve **participating in an interview**

☐☐

4. I understand that my participation is voluntary and that I am free to withdraw at any time	☐	☐
5. I understand I will not be identified at any part of the dissertation.	☐	☐
6. I understand the information I give will be used for the purposes of this study only.	☐	☐

Include the following statements if appropriate, or delete from your consent form:

7. I agree to the interview being audio recorded.	☐	☐
8. I understand that I may be quoted in this thesis.	☐	☐
9. I would like my quotes to be anonymised.	☐	☐

_____	_____	_____
Name of Participant	Signature	Date

_____	_____	_____
Name of Participant	Signature	Date

When completed, 1 copy for participant; 1 copy for researcher file.