IMOGEN THOMAS

THE INTELLIGENCE ERA

TO

A PAPER EXPLORING A NEW HYBIRD INTELLIGENCE AND ITS EFFECTS ON CONSUMERS AND SOCIETY.

WILL EXTENDED INTELLIGENCE SHAPE 21ST CENTURY CONSUMERISM?

QUESTION

WILL EXTENDED INTELLIGENCE SHAPE 21ST CENTURY CONSUMERISM?

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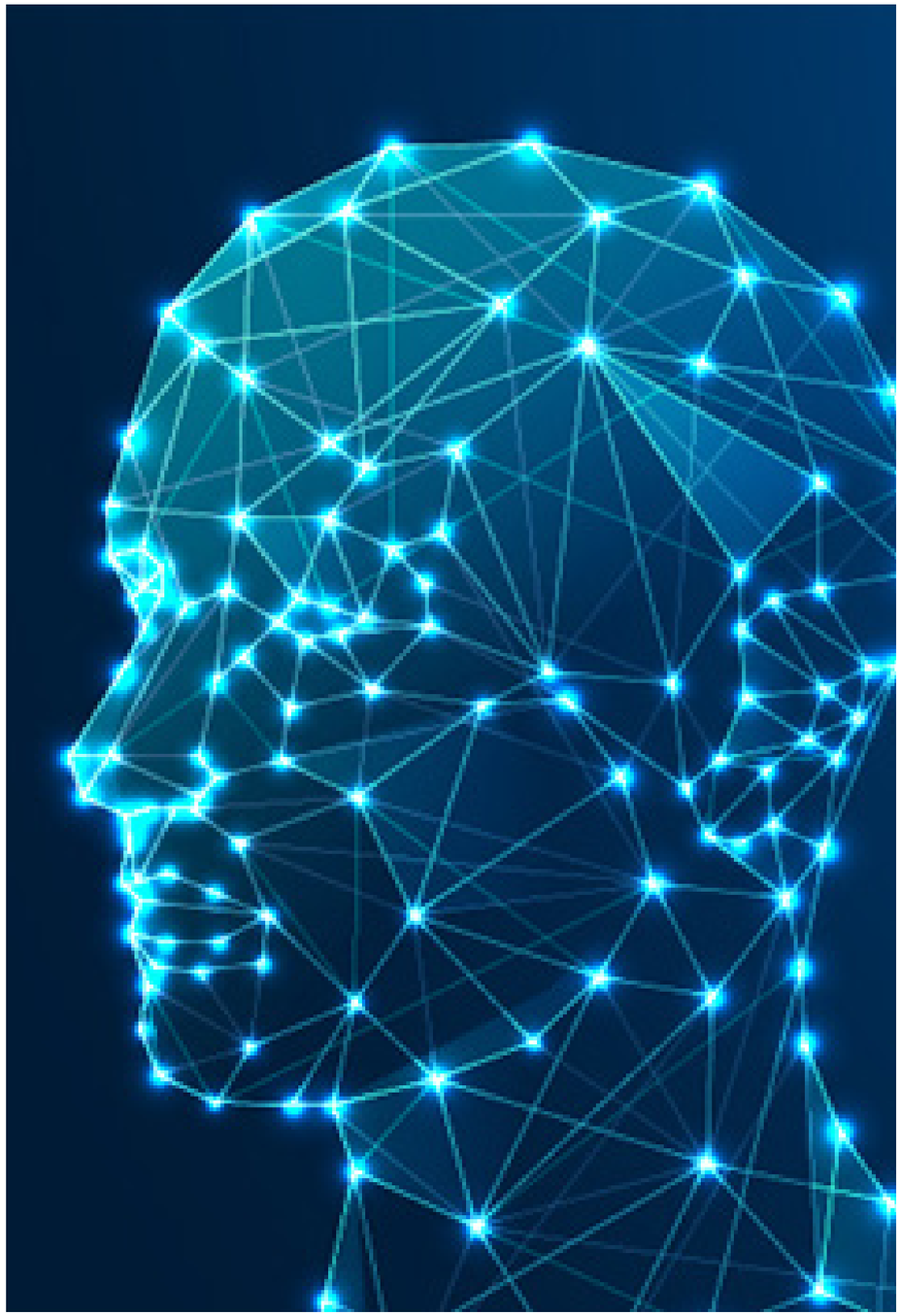
To question ...



This case study sets out to examine the benefits and risks of artificial intelligence (AI) and to explore how extended intelligence (EI), a hybrid intelligence system, could work to shape 21st Century consumerism. Furthermore, this case study will investigate the extent to which the correlation between advancing technologies and human interaction, could co-exist harmoniously to form a hybrid intelligent solution to ameliorate 21st Century consumerism.

The Digital Revolution over the last 50 years has fundamentally changed human communications and the manner of business transactions. The rapid growth in the 21st Century of AI has advanced the development of human society, changing the way people consume information and further transformed the way most industries and businesses conduct routine interactions with their client base. However, despite the undeniable advantages the digital revolution has brought to 21st Century business culture, it could be said that as a principle component of that revolution, AI, has inherent risks and that there is a growing demand for humans to be added into the equation.

This study will explore the emergence of hybrid or EI and its potential to respond to this demand. The multifaceted and multivalent features of AI and EI, and its rapid development make these difficult and complex topics to be fully comprehended. Nonetheless, it is the intention of this study to explore the nature and contemporary use of these technologies and their derivative, big data, and interrogate its impact on the development and growth of these digital practices, which will then lead onto a discussion of "Techlash" which this study will argue highlights a need for 'humans in the loop', which in turn will lead to a consideration of whether a hybrid intelligence is a way to shape and inform 21st century consumerism.

KEY WORDS:

Artificial Intelligence (AI) /

Data Revolution /

'Humans in he loop' (HTL) /

Extended Intelligence (EI) /

Consumerism.

Abstract.

Methodology.

A combination of both primary and secondary research has been undertaken in order to complete this study and the majority of the research was conducted through a

qualitative strategy. A core reason for carrying out qualitative research methods was that they provide copious descriptions of this complex subject area and will aid to unearth opinions, thoughts and feelings of contributors to gain an understanding of the new concept of extended intelligence (EI).

The primary research included a number of approaches from a range of demographics; focus group and interviews. Secondary research was conducted through the review of a range of academic literature: books, podcasts, magazines, newspaper articles, online resources and documentaries, in order to develop a hypothesis. Quantitative research was used when exploring the topic of artificial intelligence (AI), however when discussing EI due to the fact that it is yet to be fully developed there is limited quantitative research available to support the findings of this paper. This study will explore if EI will shape 21st-century consumerism by outlining if EI, a synthesis of human and machine intelligence and interaction and will be referred to as EI, could benefit companies and consumers by optimising the collaboration between humans and AI.

Artificial intelligence which will be referred to as AI, is defined as a computer programme that learns and adapts and

"is the name given to any computer system taught to mimic intelligent human behaviour." (Oxford Internet Institute,n.d.)

The shift from analogue static forms of transaction to dynamic interactive digital contact allows for connected consumers to have 24/7 access to an infinite amount of content and consumption.

According to Ericsson's 2019 Internet of Things forecast, there will be around twenty-nine billion connected devices globally by 2022, such as online consumer products like fridges and washing machines which automatically restock, car maintenance systems which book service checks, and smart speakers. Many of which rely on AI with little interaction with the consumer. This highlights that the growth of the internet has been the stimulating force behind the digital intelligence revolution.

A consequence of the growth of connected consumers has provided the catalyst in the increase of

big data  available.

Big data refers to the collection of large and diverse sets of information from a variety of sources that grows exponentially: indeed, the fact that ninety per-cent of the world's data has been produced over the last two years, reveals big data to be effectively the Fourth Industrial revolution. (Wisskirchen,et al,2017) Big data is fundamental to the use and development of AI, a term first used at a conference in 1956. However, since its inception AI has rapidly become widely

known to the wider audience, especially during the past five to ten years. AI has progressively influenced an infinite variety of routine consumption activi-ties. As a result AI applications now have the potential to reshape not just the nature of consumption, but more significantly the presupposition of consum-ers, the manner in which that stakeholders of companies collaborate, and actively contributes to a fundamental revamp of frameworks within business sectors. AI inspired innovations such as Chatbots, virtual assistants and robots are gaining increasing traction in commerce. For businesses across the spectrum of the commercial world customer and consumer engagement is actively being enhanced through AI applications such as: advanced cookie driven website search facilities, tailored offers and personalised recommendations. (Anyoha,2017) (Sheffield University Management School,n.d.)

However, research indicates that current AI may not prioritise people over profit and productivity. The Council on Extended Intelligence states that "The notion of extended intelligence is a step for-ward from that of 'AI', which is not working. " (n.d.)

This is one of the results of 'Techlash', a term first coined by The Economist to describe a new phenomenon of "growing hostility towards the tech giants. (Hill,2019)

Evidence from Deloitte suggests consumers indicate a desire for a

human touch

despite peoples' reliance on digital connectivity. Therefore, it could be seen that human connection and human touch has been inadvertently lost in the advancement of AI and suggests an increasing demand for authenticity in today's digital age. (Deloitte,2019)

In addition to this, experts in the field of AI, such as Stephen Hawking and Elon Musk, have raised questions over the prospective advances far beyond human capabilities, fuelling the debate over its ethical use and its potential to pose a threat to humanity. (BBC,2014)

The study addresses if EI is to be implemented in contemporary practices, analysis of associated risks and benefits of how a hybrid intelligence will need to be addressed through bias, ethics and the dominant influence of AI if EI is to shape 21st century consumerism.

CHAPTER ONE

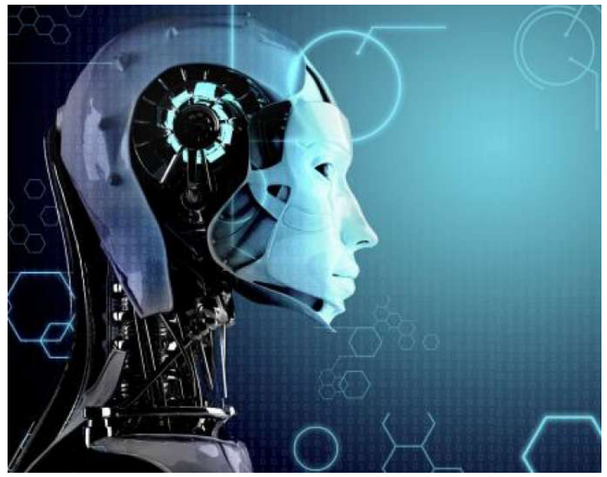
WILL

EXTENDED INTELLIGENCE

SHAPE 21ST CENTURY CONSUMERISM?

“Technology has always been a driver for changing consumption patterns.” –

Claus Kjeldsen 2019



Chapter One

The Rise of Artificial Intelligence(AI) in ECommerce

"Technology has always been a driver for changing consumption patterns." – Claus Kjeldsen 2019

To understand how extended intelligence (EI) shapes 21st century consumption, it is essential to understand the emergence of artificial intelligence (AI) and its role in the marketplace. Chapter one will examine the benefits and risks of the growth and dominance of AI and its influence on contemporary consumer consumption. This chapter aims to identify what fueled and led to the development of the AI revolution, to explore its potential impact on consumerism and to analyse consumers' awareness and response to AI.

A benefit of digital technology is the ability for companies to collect big data. This can be analysed and used commercially in a multitude of ways to influence how information, advertisements, goods and services alike are consumed: everything from routine "customer behaviors to whether patterns to demographic consumer shifts in emerging markets", (Mckinsey & Company,2015)

Contemporary application of AI features is widely used to enhance customer experience. Many of today's products are designed for mass consumption, however, AI can 'revolutionise the scale of personalisation' which is achieved from inputting consumer data and using AI collaborative filtering algorithms to provide consumers with a personalised curation of products. (Mckinsey & Company,2019)

Consequently, increased personalisation, has highlighted the growing pressure on companies to understand their consumers, to know them bet-

this benefits the consumer and gives a business the opportunity to "demonstrate the value consumers get from their personal data being used."(Delottte,2019)

The impression of consumer empowerment has advantages for the business itself. BIG DATA powers AI recommendations on ecommerce sites like Amazon. The application of AI in its business model provides Amazon with a third of its turn over. Its AI protocols attempt to stimulate customer interaction, personalise customer experience, and meet individual demand. However, Amazon's utilisation of AI goes further. Its algorithm works to anticipate future demand and therefore maximises profit and business opportunity, a clear indication of how important data-driven algorithms are to facilitate consumer engagement. (DW,2019)

An examination of the relationship between the consumer and the AI which manages the consumer's experience reveals that there is a potential for the consumer to become exploited by the AI and MANIPULATED INTO BEHAVIOURS THAT BENEFIT THE BUSINESS. Rather than benefiting the consumer, applications including recommendation features may actually do the opposite, 40% of Amazon manufactured products offered to the consumer in the Amazon recommended features section. Such a practice facilitates an increase in consumer consumption in order to meet its internal corporate target regardless of what is best for the consumer. The bias of this algorithm works to eliminate other product choices that may better fit the consumer's match, and impact upon the diversity of consumer choice in an imposition of a monotony of choice. Amazon's 'own brand' dominance within its 'Marketplace' has arguably meant that Amazon can effectively set prices and dictate terms to exploit consumers and other 3rd party vendors.(Hosanagar,2019) (DW, 2019) (Bartlett, 2018)

The exploitation of customer loyalty and the potentiality of bias within algorithms raises a number of ethical issues. For many consumers AI presents them with an interface which is both convenient and quicker than traditional modes of consumption. (Stansberry,et al,2019)

Equally, for others the potential for commercial abuse of AI outweighs the perceived benefits. Surveys indicate an awareness by consumers of a certain level of manipulation and pressure as a result of AI intervention. Over-shopping and out of control decisions indicate potential manipulation by companies who use AI and highlight the ethical concerns that an AI enabled service may engender.

"Sometimes you don't want to shop but you shop…There's too much impulse shopping, something pops us and attracts you and you end up buying it."
(Consumers International,2019)

Laura Aldous, a Trend Forecaster, has expressed her concerns that recommendation features in Amazon and other companies may encourage consumers to buy more and to promote over-consumption. (see appendix i) Aldous' views are further reinforced in a study, by Linc Global and Rakuten, which found that new owners of Amazon's intelligent assistant Alexa, increased their purchases of consumer products, by 13.5% in the third quarter of 2017. (Kim,2017)

Equally it is essential to understand consumer awareness of such AI consumer experiences that could be used to impact their decisions. According to research, as little as 33% of consumers think they use technology aided by AI such a figure becomes significant when compared to 77% of people who actually use an AI-powered device or service. This strongly suggests that consumers have unknowingly become reliant upon this AI and as a consequence their consumption is influenced without their proper knowledge and understanding. (Pega,2018)

Increased ownership of smart devices and the rise in time spent on digital platforms has given digitally enabled companies a mass of information use in a multitude of ways. This increase in available consumer data has been instrumental in the shift from traditional tangible high street consumption to today's tech-driven virtual shopping. The shift from physical to digital allows connected consumers to be targeted with endless possibilities and variation. Statistica has predicted by 2021 ownership of smart devices will rise by 68% to reach 3.8 billion. This exponential increase in ownership has been instrumental in the shift from traditional high street consumption to today's tech-driven virtual shopping. The shift from physical to digital allows connected consumers to be targeted and empowered in a multitude of new ways, with endless possibilities and variation. (Uzialko,2018) (Statistica, 2020)

However this increase in consumer empowerment highlights brands' uncertainty of their customers behaviour, as buyers become harder to predict. In order for brands to remain relevant to consumers AI has proved to be vital. Leading companies including Facebook, H&M and Amazon actively use AI across various areas of the value chain to accurately forecast their customers consumption patterns, lowering the risk of uncertainty. (Mckinsey & Company,2017)

As AI infiltrates the market and consumer behaviour changes, traditional methods of consumption alter to reflect this changed relationship. Bricks and mortar shopping, once favoured by consumers, has been steadily losing ground. Great Britain, once labeled a 'nation of shopkeepers' has become a prime example of the relocation of the traditional marketplace. The impact on the traditional high street is palpable. According to a recent BBC report, shop vacancy rate was 10.3% Data explicitly suggests that high street vacancies are related to the impact of the digital or virtual market place, the exponential increase in internet accessibility and the growth of the smartphone market. (McLoughlin, 2020)

Nonetheless a study conducted by the Office For National Statistics compared the relationship between the amount spent in online and "bricks and mortar" argues that despite strong e-commerce presence, most consumers spent their money in a physical store, with only 15.9% of sales made online. This data suggests that consumers feel more comfortable with a human connection over a method of consumption they may not feel comfortable with. This point is supported by Futurist Kevin Kelly he illuminated that people tend to "impulse to shy away from new technologies out of fear." (Murphy, 2018) (Ogilvy,2017)

To conclude, much of Chapter one has explored the rise of AI in terms of commerce and its impact in both negative and positive terms on consumerism. One of the consequences of this imposition of digital market practice has been a sense of growing consumer unease or 'techlash' as a pejorative response to their awareness of AI and its agency in the mediation of their habits of consumption.

CHAPTER TWO

WILL

EXTENDED INTELLIGENCE

SHAPE 21ST CENTURY CONSUMERISM?

"Technology is giving life the potential to flourish like never before - or to self destruct"

Tegmark,2017

Chapter Two

‘Techlash’

“Technology is giving life the potential to flourish like never before - or to self destruct” (Tegmark,2017)

The objective of this chapter is to explore and discuss such customer reactions to artificial intelligence (AI) and analyse an emerging consumer demand to ‘humanise’ AI and to impose a ‘human in the loop’. (HITL)

As stated in the previous chapter, the amount of time spent online by people in the UK has doubled in the last 10 years, with a quarter of adults saying that they spent more than 40 hours a week on the Internet Journal of Human Computer Interaction found that on average people switched from one screen activity a nother every 20 seconds. (Waterson,2018)
Of course a consequence of greater digital activity produces a wealth of meta-data and a dramatically increased digital footprint. Nowhere is this digital footprint more valuable and significant than in retail and direct sales. Commercially big data provides invaluable insights into consumer behaviour and can lead to better strategic decisions for business. Every digital interaction reveals an opportunity to an online business to further develop their relationship with their customer. (Holmlund,et al,2020)

However, for some consumers the arcane intimacy of this relationship, the covert nature of data collection and the potential for exploitation raises questions regarding this digital by-product of increased digital consumption and engagement.

Katerina Nown, a data protection activist and author, requested access to the data Amazon had compiled about her and her consumer engagement with their company under the General Data Protection Regulation (GDPR). The results were returned to her contained in a

15,000 page document which represented just one years’ data.

This “frightening” amount of information included a range of detail distinct from a record of her purchases from Amazon including potentially sensitive and personal information such as records of her telecom provider to the website she had been on prior to using Amazon. Such examples work to highlight the sheer volume of personal information to which tech giants, such as Amazon, have access. This coupled with the increased online activity of people, inevitably increases their digital footprint, potentially informing the marketing strategies of brands and companies and in turn

influencing and informing consumer behaviour and consumption practice.(BBC,2017)

This intrusive interpretation of consumers when they learn of the depth and scale of knowledge commercial companies possess through the analysis of big data is reflected in the results of the research conducted by McWhorter and Bennett in 2020. In a focus group of Amazon users, the term “creepy technology” meaning technology that evokes feeling or belief that privacy may be invaded in an unethical or discomforting manner was discussed. (McWhorter & Bennett,2020)

In relation to invasive technology such as AI, participant three expressed their desire to "go off grid as it was an invasion of privacy." (see appendix ii) This point is ameliorated by a survey conducted by Euromonitor International. Their Lifestyles Survey (2019), directly addressed global consumer attitudes to the commercialisation of data. The survey notes that due to well publicised data breaches in the past consumers have become 'wary of services that collect personal information…suspicious of how their information will be used'. The survey also highlights the fact that 50% of its respondents representing multiple demographics felt that targeted ads based on their online searches and purchase history represented an invasion of privacy. (Angus & Westbrook, 2020)

It is therefore reasonable to conclude that for at least half of online consumers the manipulative potential and intrusive design of AI has a negative effect on user experience. The corollary of this is of course that 50% of online consumers are content with the service.

Margrette Vestager, in an interview with Mark Herlog and Marko Rosseler, further adds her own analysis to the invasiveness of corporate hardware. On November 6th 2014 Amazon released their first domestic AI device, Alexa. Superficially an infotainment device, Alexa is also a complex cyber front door to their marketplace. Recently there has been a great deal of controversy regarding Amazon's device as the implications of its always on always listening and recording became apparent. Vestager argues that devices such as Alexa represent a new form of capitalism, wherein people think they are the consumers however in reality they are the suppliers of raw materials, which means they pay twice over. (DW, 2019)

However developers from Silicon Valley dismiss consumer concerns about privacy and evasive penetration of their internet behaviour as a mere consequence of the current industry approach to data collection and is relative to the current point of development in AI. To these AI developers the acquisition of consumer data necessitates the experience and completing a cyclical process which might be considered mutually beneficial and is therefore necessary to progress and support our contemporary lifestyle in our digital age which, results in providing consumers with more focused, convenient and personalised services, a demand that has already been noted in chapter 1 of this study. Alexander Nix, CEO of Cambridge Analytica, supports this point, when he suggests that people should not find AI 'creepy' or invasive, He points out that users have voluntarily entered their information into a public domain and that action and its consequences is no different to owning and using a supermarket loyalty card. Each system, AI and loyalty cards work to drive marketing, communication and business intelligence and therefore in turn influences consumer behaviour which ultimately impacts upon consumption. (Bartlett,2018) (BBC,2017)

Contrastingly, some consumers have recognised the pejorative potential of these digital practices and have consequently communicated a desire to disconnect from the data revolution and routinely prefer to remain 'off grid', retreating back to a more traditional transactional relationship with business, preferring what they know and understand to the compromised immediacy of the digital revolution. This, of course, works to potentially result in a decrease in consumption within such consumer groups, as they are detached from the potential influences that AI brings. Given this rise of skepticism and the practice of consumers removing themselves from the penetration of AI and contemporary invasive digital practice it is unsurprising that as Redi Hoffman told the New Yorker in 2017, that around half of all silicon valley billionaires have some agreement of what he called 'apocalypse insurance'. (Osnos, 2017)

Consequently, in the last few years, tech lash is actively contributing to the latest development of AI, from AI to extended intelligence (EI). THERE IS A GAP HIGHLIGHTED AMONGST CONSUMER GROUPS AND PROFESSIONALS BETWEEN HOW AI AND HUMANS COEXIST AND SUPPORT THE PROGRESS OF CONSUMERISM. According to Global Market Insights between 2016 and 2024, the market share for voice powered applications such as customer service chatbots and intelligent personal assistants including Google Assistant and Alexa will grow at an annual rate of almost 35 percent. (Liu, 2019)

As AI developed attempts have been made to personalise and humanise the experience. Interactions with the user interface with the algorithm have become more conversational and informal. Alexa is 'woken' by calling the device name, chat bots are programmed to respond to normal informal modes of address and everyday conversational tropes, including humour. This response by the developers of AI reveals a growing awareness in business of the suspicion of big data and invasive AI processes as illustrated above. It may also be evidence of a developer's response to the evidence that indicates that consumer demand is shifting to require a

'human touch',

a 'human connection' in order to return their sense of the authentic in today's digital age. Such an identified demand of consumers wanting a 'human touch' has clearly influenced the development of voice-powered applications, which are expected to be one of the areas most impacted in the future development of artificial intelligence. Therefore suggests consumers are now being drawn to the potential of an AI application which will embody human-like attributes of interaction and response. (Wagawin,n.d)

In contrast to this research suggests that this development of AI humanisation is still very much in its infancy. Recent studies have revealed the limitations of mainstream natural-language powered chatbots to support customer service are still not yet advanced enough to communicate the authenticity that consumer skepticism requires, as most consumers can recognise the artificiality of the algorithm. In a 2019 survey 86% of consumers stated they prefer to interact with a human agent; and as few as 30% believe that AI chatbots and virtual assistants make it easier to address customer issues. (Marr, 2020) (Press, 2019) This point could be linked to other reports which revealed that 48% of consumers stated that they lacked confidence that AI chatbots possessed the understanding and therefore an ability to help with their requests, simply because as a programmed simulacra of human interaction such chatbots lacked macro knowledge necessary to comprehend the bigger picture. Clearly this level of dissatisfaction reveals that AI chatbots may currently lack empathy and intuitive response and may actually become a feature that increases consumer frustration towards AI technology, further contributing to a decrease in user satisfaction, confidence and consumption. (O'Shea,2018) The identified lack of trust in the above point highlights that despite efforts to replicate human behavior and gestures through AI, the TECHNOLOGY MAY BE MISSING ESSENTIALS OF HUMAN CONNECTION such as emotional intelligence, personal touch and empathy. (WGSN,n.d)

However a note to be added is that mainstream application of such successful applications have not yet been implemented for mass consumer use, this technology can be expensive and not always be available to small businesses with insufficient funds and may lead to a couple of giant companies are going to end up taking the lion's share of retail and sales. But potentially shows how if adopted and accepted could build trust and lead to enhanced consumer AI experience. (Fish,2018)

Therefore as consumers highlight the absence of the 'human' interaction that AI technology brings, highlighting an AI versus human approach, this creates thought provoking considerations surrounding the potential of the integration of humans and AI through a collaborative approach, that supports a 'phygital' approach which is described as physical plus digital. (Crabbe,et al,2019)

CHAPTER THREE

WILL

EXTENDED INTELLIGENCE

SHAPE 21ST CENTURY CONSUMERISM?

“ To beat the techlash, insert humans into the AI equation”

Hayman,2018

Humans In The Equation

Following the argument developed in chapter two and its analysis of consumer techlash in the face of an invasive and potentially disincentivising data driven artificial intelligence (AI), it is important to extend this discussion to consider extended intelligence (EI) as a solution to techlash and furthermore, if fully implemented in contemporary digital retail practice, to analyse how EI may work to influence and shape consumerism in the second quarter of the 21st Century. This chapter then will examine the potential of EI to establish what benefits may emerge the development of a workable synthesis between machine and human intelligence, and to establish the nature of this synthetic coexistence of humans and AI in order to analyse whether EI represents a sustainable solution for both the consumer and business alike.

A principal application of EI within the retail market might seek initially to provide a resolution to the inherent issues regarding AI and the sense of human absence. As established in the previous chapter, there was a demonstrable need for a human framework to contextualise the mercantile relationship between business and the consumer away from an

'us and them'

opposition to a more collaborative human partnership. A partnership which seems more authentic and able to meet consumer needs. (Council on Extended intelligence, n.d.) This hypothesis seems to find support in PR and Marketing professionals. Jessica Garnham a PR, Marketing and Events specialist suggests a specifically redefined relationship between tech, business and consumers which focuses strongly on 'authenticity' of customer experience: 'AI should be used ALONGSIDE THE HUMAN TOUCH if a brand wants to build an authentic relationship with consumers' (appendix iii).

However her confidence in authenticity gained through greater human interaction with the ALGORITHM is not met with universal approval. Developers in Silicon Valley reportedly regard such human interaction as the problem and for them further development of AI technology as the solution. However, their response has been interpreted by many as evidence of an overarching agenda, in that AI developers have a tendency to identify more and more ways to eradicate human beings from the equation. (Fish, 2018)

Although some technologists may see the integration of the human into EI as a problem, companies such as car manufacturer BMW have suggested that in comparison to the old process of assembly lines of individual AI and human teams compared to their now cognitive collaboration robot / human teams were about 85% more productive.

The evidence of successful and productive HITL processes, such as one at BMW demonstrate that by adopting a different approach to the virtual marketplace companies are actively stepping away from eradicating the human from AI structures. In establishing a new nuanced approach to EI companies can achieve the efficiency benefits of digitalisation, automation and AI in allowing members of the workforce to be freed from the many monotonous and repetitive tasks inherent to most businesses, while simultaneously integrating HUMAN INTERACTION AND INTELLIGENCE INTO THE AI INTERFACE. THIS EI APPROACH is made clear in the analysis of James Wilson, Managing Director of Information Technology and Business Research at Accenture Research: 'companies that focus on human and machine collaboration create outcomes that are two to more than six times better than those that focus on machines or humans alone.' (Wilson,2018)

Evidently the 21st century has been deemed the 4th Revolution and historically new developments in technology have to lead to generations of employment. An interesting viewpoint is that EI unlike the automation caused by AI which has been previously discussed in chapter two, it is not the machines taking jobs but it is preparing people for the change and new processes that an EI solution may bring. Highlighting how an EI structure could support the economy and therefore drive consumerism.(Chan,2018)

Even though EI frameworks are working for companies such as BMW, the stigma around AI there may be a perception that jobs may be lost. A survey conducted by Weber Shandwick Research highlights that 89% of global consumers they interviewed were concerned about job losses because of AI. Such concerns and fears could be the product of the negative portrayal of AI and its impact in the media, which consistently develops a narrative of opposition in its reporting of contemporary business practice, which constructs a threat of machines against humans thereby, creating a dynamic that machines are against us. This, therefore, suggests that if EI IS TO SHAPE CONSUMERISM IN A MORE POSITIVE MANNER, IT WOULD HAVE TO PROVE IT WOULD MAINTAIN AND FURTHER CREATE NEW JOBS. (Webersh & Wick,n.d.) (Wilson,2018)

In addition it could be seen that it is important for the relationship between humans and AI to progress that a framework such as EI which supports both developing and moving forward could potentially provide a responsible way forward by using technology for a palpable social progress. Individuals, businesses and communities involved in the development and deployment of autonomous and intelligent technologies should mitigate predictable risks at the inception and design phase and not as an afterthought. This will help ensure these systems are created in such a way that their outcomes are beneficial to society, culture and the environment. (Council On Extended Intelligence, n.d.) (Ito,2019)

This chapter has reviewed the potential benefits that may emerge from the development of a WORKABLE SYNTHESIS BETWEEN MACHINE AND HUMAN INTELLIGENCE, to establish the nature of this synthetic COEXISTENCE of humans and AI in order to analyse whether EI represents a sustainable solution for both the consumer and business alike in response to TECHLASH. These points raise

questions about if EI is to shape 21st Century consumerism, what are the

key factors to ensure its longevity.

CHAPTER FOUR

WILL
EXTENDED INTELLIGENCE
SHAPE 21ST CENTURY CONSUMERISM?

Chapter Four

Future Proofing

As a consequence of the issues raised in the previous chapter, this study will now address the bias and injustices of the of artificial intelligence (AI), its potential to exploit the consumer, and privilege the business and its profit base over and above the needs or experience of the consumer in contemporary practices to future proof this development and ensure its longevity and to anticipate the nascent risks and benefits of extended intelligence (EI) in terms of bias, ethics and application to assess the prospects of EI in SHAPING 21ST CENTURY consumerism in the near to mid term.

Historically it could be argued that AI systems were only as refined as the data inputted and level of data utilisation afforded in the programming of the algorithm. In short AI has been underdeveloped,merely recording consumer habits and at best (or worse) serving as a blunt tool to drive sales in accordance with company priorities. Such early applications built in an inherent bias which as has been established above, significantly contributed to techlash and worked to introduce negative potential factors into the mercantile process. Moreover, the undiscerning design of AI algorithms also introduces the potential for much more dangerous and potentially damaging bias reflecting a range of implicit racial, gender, or ideological biases, in the collection of data that in nature is tangential to the primary function of retail AI. (Oxford Internet Institute,n.d.) (Devlin,2017)

Nevertheless, while such concerns are real, programmers can write code to allow them to eventually be able to learn MORALITY, WISDOM AND SELF DIAGNOSE inherent programming faults, thereby balancing outcomes of potential HUMAN BIAS hard wired into the design of the controlling algorithm. Consequently, independent of EI and the introduction of human mediation, AI itself could hold the keys to mitigating bias out of AI systems offering a

new opportunity to shed light on the existing biases that originally shaped their systems, but more intriguing to expose institutional bias within the business itself. (IBM,2018)

Of course it is important to note that human morality is not merely a set of rules, the COMPLEXITY of moral and ethical values are such that it is impossible to anticipate a machine language which is capable of reproducing the cultural complexities which govern human behaviours and attitudes which adds a greater emphasis on EI, with its human component as essential to identifying and addressing bias in the development of AI as a COLLABORATIVE SYSTEM. (Buerk,2017)

However, unconscious biases while an important consideration in the development of EI and its sustainability is not the only facet in a consideration of the future ethical considerations of EI. As important is the conscious bias, the deliberately written code that maximises the business opportunity, data retrieval and influence of the marketplace. Capitalism which at root is driven by profit builds in an ideological and business protocol which allows the temptation for individual programmers and companies to abuse AI technology and manipulate consumer choices for the benefit of the company, especially since most digital development is driven by venture capital, experience shows that abuse of the technology could well be the norm even with greater human interaction. (Patomäki,2017)

Accordingly there is a potential for AI to drive global inequality, this is especially due to the current singular corporate subsection of society which funds and develops programme AI technology. In support of this important point, Jillian C. York (2019) director of International Freedom of Expression has observed, "MUCH OF THE TECHNOLOGY COMING OUT OF SILICON VALLEY AIMS TO SERVE ELITES WHEN WE SHOULD BE AIMING TOWARD EQUALITY FOR ALL."

Consequently, even with the introduction of HITL (Humans in the Loop), that human engagement will not necessarily address the underlying bias and ethical shortcomings of EI.

Furthermore, access to advanced technology is dominantly seen in more developed countries and cities, and as such works to embed inequality. This simple fact raises questions over the distribution of AI aided technologies with only certain consumers able to benefit from such technological advances, offering them innumerable advantages and opportunities in comparison to consumers in less developed areas of the world. This factor in turn could even lead to a weaponisation of EI and AI, which could have exponential deleterious effects on neighbouring economies. (Butcher, 2019)

Of course, it could be argued that underdeveloped regions do not currently have the infrastructure in place to facilitate equal and fully shared advancements in technology, but with the rollout of 5G across the globe in 2020 this issue of equality of access, and reciprocal experience may make this issue affecting the sustainability of EI more pressing and pertinent as we move into the second quarter of the 21st Century. (Deloitte, 2018)

Nonetheless the concentration of power and the potenital reinforcement of blatent commercial discrimination against certain regions, economies and ideologies have historically led to a deterioration in consumers' trust in how algorithms make the decisions they make and the impact that the decision can have on the consumer. (Chandler, 2020)

However, research suggests an AI algorithm that can explain its decision making in a manner that a user can understand, may allow for an improved trust between consumer and interface which in turn may allow for EI to develop. Findings such as these are leading to the development of innovative EI systems aimed at restoring that trust known as Explainable AI (XAI) which is the EMERGING FIELD OF MACHINE LEARNING CURRENTLY AND IS AN AREA THAT STILL NEEDS MORE PROGRESS IF EI IS TO EFFECTIVELY SHAPE CONSUMER CONSUMPTION. Underdeveloped XAI along with human fault raises conversations over sufficient education on the development of sustainable interactionbetween people and technology, socio-technical systems (STS). (Schmelzer,2019) (Pontoni & Bruschi,2018)

In addition and as established in chapter two in parallel to techlash responses from consumers aware of the processes initiated in AI interfaces, there also is a significant proportion of consumers who lack any real awareness of AI. Such a level of ignorance is unhelpful to the development of EI, and perhaps demonstrates the need for greater transparency and additional EDUCATION with regards to the use and consequences of AI/EI in consumer transactions. If companies are to behave in a moral and ethically sustainable manner, there is an argument that all consumers could gain a better understanding of why and how companies integrate AI/EI to improve experiences for consumers and to fully meet their needs.(Pega,n.d.)

Not all observers necessarily agree. Consumers International express the view that 'consumer education is nonsense' the responsibility lies with companies to use technology responsibly and ensure the consumer's needs are put first. If companies do this, there is a notion from consumers that they feel AI enhanced structures can make their lives better and would welcome the technology. However, as pointed out above, businesses have to show consumers real value, ENSURING AI IS NOT JUST A NOVELTY BUT A REAL COMPETITIVE ADVANTAGE AND WHEN COUPLED WITH HUMAN INTELLIGENCE WORKS TO IMPROVE AND AMELIORATE THE CUSTOMER EXPERIENCE. (Consumers International,2019)

CONCLUSION

WILL

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SHAPE 21ST CENTURY CONSUMERISM?

Conclusion

In conclusion, this case study has EXAMINED THE MANNER IN WHICH ARTIFICIAL INTELLIGENCE (AI) HAS BEEN UTILISED IN LATE 20TH CENTURY BUSINESS PRACTICE. In the course of this analysis the

benefits and risks of the introduction of AI have been assessed and in the light of that assessment the case for A NEW SYNTHESIS of AI with a greater interaction with the human could form what is referred to as

extended intelligence (EI) which could radically reshape 21st Century consumerism. It is clear that the consumer suspicion and ethical concerns surrounding the use of 'big data' represent an existential threat to this emerging practice, with the European Union as an example of an Economic community curbing its commercial use and potential through GDPR legislation. However this study through its investigation of both AI and EI has reveals that businesses will continue to use

BIG DATA TO SHAPE CONSUMER BEHAVIOURS AND TO DRIVE CONSUMPTION. (Anyoha,2017)

Regardless of a certain level of customer concern, big data is fundamental to the use and development of artificial intelligence. (Anyoha,2017) However it is the conclusion of this study that if AI is to continue to offer the convenience and personalised empowerment for which it was originally designed, it must respond to the calls for a greater humanisation of its interface, to adopt a greater sense of human authenticity in the form of EI.

Consequently such innovation is to be sustained in the long term, it is clear that new programming protocols and business philosophies must also be developed to address the serious ethical concerns raised in Chapter 4, especially around the issues of BIAS, CONSUMER MANIPULATION AND PRIVACY CONCERNS.

Regardless of the technological or systemic solutions to the ethical issues raised by AI or EI it is clear that there are fundamental issues facing the development of automated digital processes and their relationships to human consumers and customers. Throughout the history of AI there has an attempt been made to simulate human interaction. And it is clear that there is a fundamental consumer demand for the

"HUMAN TOUCH" OR "HUMAN CONNECTION" TO MEET THEIR EXPECTATIONS OF AN AUTHENTIC TRANSACTIONAL RELATIONSHIP. (Wagawin,n.d)

Furthermore, given the 'techlash' identified and discussed in chapter 2 it is important that this conclusion recognises that there is a role for consumers to be educated and to fully understand the applications that they are engaging with when they conduct online digital transactions with digitally enabled companies. As was noted in Chapter 2 there is a significant proportion of consumers who lack any real awareness of AI. Such a level of ignorance in the long term is unhelpful to the development of EI, and perhaps demonstrates the need for greater

transparency

by business and a need for additional education for consumers with regards to the use and consequences of AI/EI in consumer transactions. If companies are to behave in a moral and ethically sustainable manner, there is an argument that all consumers could gain a better understanding of why and how companies integrate AI/EI to improve experiences for consumers and to fully meet their needs. (Pega,n.d.)

Hypothetically, it could be said that it is clear that this technological space is still in development and it is difficult to predict the future for the way in which digital marketing will interact with its customers in the future. While technological solutions may well provide short-term answers for AI, it is clear that consumers seek to see:

"A PARTNERSHIP WHICH SEEMS MORE AUTHENTIC AND ABLE TO MEET CONSUMER NEEDS."

(Council on Extended Intelligence.n.d.) However, given the negative portrayal of AI and the high-profile media coverage that has been given to questionable practice by some of the tech giants, a media narrative has developed which creates a dominant opposition in its reporting of contemporary business practice, in which the threat of machines against humans, "them" against "us" is promoted and sustained. The dystopian tone of media coverage regarding machine intelligence and its interaction with the human may become an obstacle that EI will not be able to address or overcome, which in turn, may impede its development as a successor to AI in the marketplace. Indeed recent evidence exploring the potential for the coexistence between human and machine reflects upon the notion of a singularity: the emergence of a hybrid super intelligence that surpasses human level intelligence as suggested by Stephen Hawking who wrote of the consequences of building machines that can match or surpass humans. (Webers and Wicks n.d.) (Jones, 2014)

It is to be hoped that such doomsday scenarios can be avoided, and the great contribution that EI represents to business can be embraced and developed to provide an ameliorated and more effective technological solution to business transactions in the first half of the 21st-century. There are clear studies that show that EI CAN BRING ENHANCED PRODUCTIVITY and work in a business setting - this could possibly mean a potentially faster and more satisfactory service for consumers. For example companies such as the car manufacturer BMW have revealed that in comparison to the old process of assembly lines of individual AI processes and human teams when compared to their now cognitive collaboration robot/human teams productivity improved by as much ad 85%. (Wilson, 2018)

However, once again improvements in productivity benefit the business not necessarily for consumers all those who are engaged in production. It is important to remember that any advance in technological business engagement serves a capitalist agenda. Capitalism which at root is driven by profit builds in an ideological and business protocol which allows the temptation for individual programmers and companies to abuse AI technology and manipulate consumer choices for the benefit of the company, especially since most digital development is driven by venture capital, experience shows that abuse of the technology could well be the norm even with GREATER HUMAN INTERACTION. (Patomäki, 2017)

So the debate continues into the benefits and risks of further advances in AI AND EI INTEGRATION AND ITS POTENTIAL IMPACT ON 21ST-CENTURY CONSUMERISM. In many ways the technology is still in its infancy and this paper has raised perhaps more questions than answers regarding its future, and there is clearly great scope for further research in this area. One area of further study which seems intriguing is with a more revolutionary and arguably even more ethically questionable development of symbiosis. Neuralink, a company founded by Elon Musk, is developing a chip that can be inputted into the human skull, that would provide the human brain with a computer interface via AI. According to Musk, this could eventually lead to a future of 'superhuman intelligence' which would allow data from the brain being connected to an app on users devices, contributing significantly to the potential for shaping consumerism. (Hitti,2019)

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Appendix (i)

Interview insight from Interview with Laura Aldous, Trend Forecaster, where consumer control over e-commerce purchases was discussed.
Imogen: What do you think of AI aided technology such as Amazon's recommendation feature and tailored ads and their effects on consumption - do you think it makes you/people buy more? Do you think they could potentially be aiding overconsumption? Or could these features be allowing us to buy products that are better suited to us and therefore buy less?
Laura Aldous: AI aided tech and generated recommendations do make people buy more than they might have set out to do at the beginning of their shopping experience. However, from my own personal experience, I do not necessarily think this always has such a big impact at the moment as it could have in the future. I feel that sometimes these technologies can still feel a bit 'clunky'.For example, when I receive recommendations from Amazon Prime they are mostly totally irrelevant to me and what I actually want to purchase.

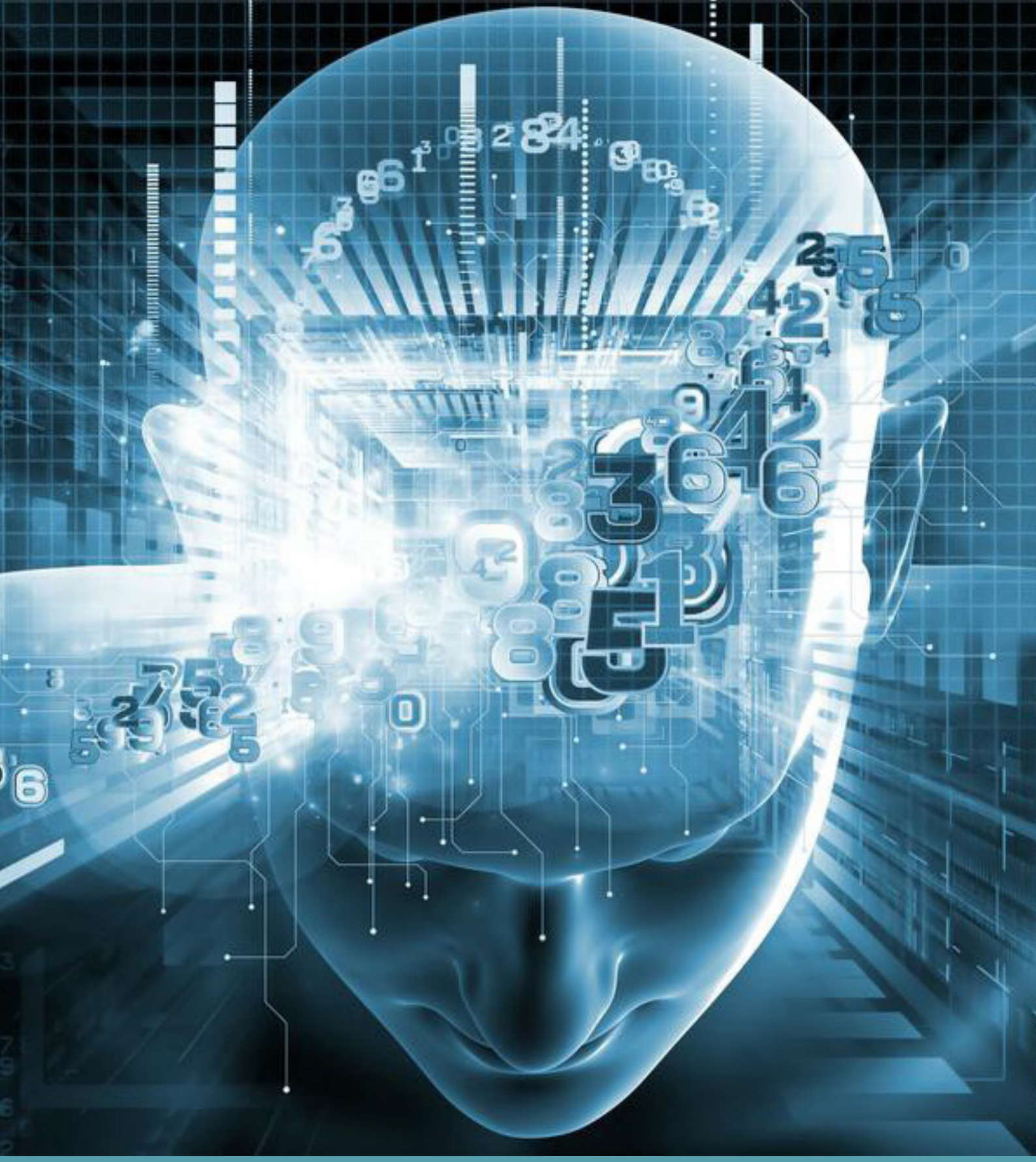
Appendices

This has the opposite from the desired effect on me, making me more inclined to just deleted the emails before looking at them. I feel that as technologies develop and become more sophisticated, then their success rate will increase.
Also, I feel that looking at the current climate, more and more consumers are seeking transparency and an ethical focus for the brands they invest their money in. People will want to make more considered approaches and engage with brands that are telling a story. I feel if consumers start to receive a high stream of recommendations and ads, it could actually put them off wanting to make a purchase.
Also thinking about issues of tech privacy, I know that for myself and people I know, the thought that our devices are 'listening' to us and what we want, then popping up ads for these same items is actually off-putting and a bit annoying.
I think that for these AI-generated recommendations to work, they have to still have an element of humanity to them and not be overwhelming and inaccurate." (2020)

Appendix (ii)
Focus Group Insight from 5 Amazon users, Cai Jones 21, Sam Clarke 22, Sam Calpton 26, Luci Melegari 56 and Lucy Quinn 31 where the term 'creepy technology' was discussed.
Imogen: The term creepy technology has been defined as a feeling or belief that privacy may be invaded in an unethical or discomforting manner. Would you feel you have ever felt this?
Lucy Quinn: I would say the word creepy defines how I feel very well when I get a pop up on my phone of something I have been talking about previously. I do not mind companies having access to my details however, I do find it 'creepy' and invasion of privacy when I do not think I have given permission.
Luci Melegari: I feel the same, I have read so much about turning off certain features on your phone, if what is said in all of the papers is true about the number of information companies like Amazon have access to, they must have so much information on me.
Imogen: How does that make you feel companies having all of this information on you?
Luci Melegari: Like I need to go off-grid as it is an invasion of privacy if I have not allowed them access.
Cai Jones: Yes, off-grid I know so many people who are deleting apps and only have set ones to minimise tracking. It's very sneaky of companies to auto click and has preselected settings on websites to gain information. I personally know about these things however most people may not and will just be clicking the accept button to anything that pops up.
Sam Clarke: I agree with everything that is being said. I myself am very conscious about clicking accept on websites to confirm my data sharing. I think this has normalised data sharing and now people just press yes to everything, potentially unknowing to what they have just shared with companies.
Sam Calpton: If I owned a company I would want everyone to know exactly what information I was getting from them. There has to be a balance, yes I agree the technology used could seem creepy, but how else are companies supposed to supply the demand and personalisation that sharing personal data gives.

Appendix (iii)
Interview Insight from interview with Jessica Garnham, PR, Marketing and Events specialist where brands relationship to consumer and technology was discussed.

Imogen: Key points for brands to foster community both on and offline?
Jessica: In my personal experience, the brands that are able to foster strong communities are the brands that are the most approachable, inclusive and transparent. When a brand builds trust with a consumer it gives them the confidence to become an advocate for the brand. Humans are tribal in nature and thrive off a sense of belonging. In a world that's becoming increasingly faceless and automated, I think that humans crave that connection in their transactions. Like any human relationship, it needs to be based on trust.
Imogen: Do you think new emerging technologies such as artificial intelligence (AI) will continue to have an impact on marketing? Do you think these technologies are a good thing for consumers consumption?
Jessica: I think that AI has offered fashion businesses the opportunity to easily understand customer data and to use it in a way that benefits both the brand and the consumer. It can also elevate the customer service experience by offering services such as round-the-clock support and relevant suggestions which grow sales. However, I believe that it should be used alongside human interactions if the brand wants to build authentic relationships.
Imogen: Do you think brands need to bring back more of human touch with the rise in techlash?
Jessica: I think that a blend of the two can make for a successful business. it's certainly the case that people are not fooled by automated messages and many crave a more human approach. However, the use of technology to improve efficiency, manage data and elevate customer service can help a small brand to match the customer expectations set by well established global brands. By giving a brand a face, a story and cultivating a community alongside this, they can ensure brand loyalty.



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