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The Technological Hegemony: Or how we stopped thinking and learned to love technology

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Abstract

Our modern society is one entirely informed and regulated by its technology use. A life in modern society without a reliance on technology is rapidly becoming a fallacy, as we have become so dependent and so intertwined with our technical creations that we are becoming increasingly inseparable. This dissertation aims to articulate a new theory regarding the place of technology within our modern society, stipulating that it has gradually become something more than just a tool or a support system.

Through an exploration of our nexus with technology at a societal level throughout the 20th century and into the 21st, we shall examine the proposition that we have become a technocracy in the modern age. This modern technocracy encompasses the notions that we have gradually become not only increasingly dependent upon technology to maintain stable societal functioning, but also reliant upon it to ensure the future endurance of society.

Following these declarations, the emergence of a new force within this technocratic equation shall be codified: the emergence of the Technological Hegemony. By discussing this theory's dynamics within the context of the Technology Acceptance Model, the current dominant model for technology acceptance and use, it shall be argued that our adoption and use of technology has become automatic, unthinking, inescapable, and altogether dominant to our everyday lives and the functioning of society. Furthermore, through careful consideration using examples from surveillance technology and relevant Surveillance Studies literature (such as Foucault, Haggerty & Ericson and the Social Construction of Technology approach), this dissertation aims to test both the theoretical and practical acumen of its theory, whilst also addressing potential avenues of both critique and further development.

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List of Abbreviations

BI   -   Behavioural Intention

DPA   -   Data Protection Act

NHS   -   National Health Service

NSA   -   National Security Agency

PEU   -   Perceived Ease of Use

PU   -   Perceived Usefulness

SCOT   -   Social Construction of Technology

TAM   -   Technology Acceptance Model (1, 2 & 3)

TH   -   Technological Hegemony

Introduction

Humanity and technology form a unique symbiotic relationship. Without technology, it is dubious to assume that our species would have achieved its continued longevity. Likewise, it could equally be said that without humanity, technology would not exist. Thus, this coevolution has produced something of a nexus between technology and society, whereby technology has acted as a quintessential force that has advanced alongside us (Rama Murthy & Mani, 2013). The basis of many cultures and most civilisations finds root at our development of technologies to propagate them, as this technological force has significantly influenced and shaped our societies across time (Bennett, 1977). For the majority of our civilised existence, technologies have furthered our understanding of the world and our abilities to overcome and survive it. However, as this dissertation shall hope to establish, our inalienable connection with technology, in modern society, has eclipsed these humbler symbiotic purposes to become something both wholly fundamental and yet increasingly sovereign to the existence and future of the human species.

Since the Industrial Revolution, there has been a dramatic influx of technological developments across all sectors of society. From business to agriculture to medicine, technologies were developed to solve society's problems and improve people's lives. These initial goals engendered an inevitable industrialist need for efficiency, endeavouring to ever-streamline the required solution through innumerable permutations to achieve not only the most efficient results of each technology's usage, but also its more effective ability to be commercially viable (Grassby, 1999). This is an extremely basic summation of how industrial society continued and later evolved into what would be coined by Daniel Bell as the 'post-industrial society', within which many argue we find ourselves today (2004). Our relationship with technology grew during this transitory era, from tools that facilitated human solutions in the pre-industrial society, into machinations that acted as facilitative support systems fulfilling a limited scope of roles to support human solutions within the industrial society, to finally transcend from technology as tools and support systems into fundamental requirements for functional society in this post-industrial world, wherein previous roles are maintained and

enhanced whilst new roles across wholly new sectors of society are fulfilled (Gibson, 1993).

The graduality by which technology has become foundational to the even daily functioning of not only society at the macro level (e.g. societal infrastructure) but also at the micro level (e.g. each individual person) is nothing short of an evolutionary force; within a relatively short period of human history, we have become almost entirely dependent on a force by which we ourselves have facilitated. We have utilised machinery and technological solutions to advance our society beyond previous iterations, and thus technology itself has advanced not only in its ability to achieve its designed solutions, but also in its significance within the societal complex itself.

After advancements made prior to, during and after the ending of the Second World War and across the subsequent Cold War era, the world found itself in a period of scientific and technological prosperity. The significant advancements made during these periods giving way to further developments that enabled society to exist both as more knowledgeable, connected and powerful than ever, and yet becoming increasingly dependent on technology to maintain societal function (Field, 2003). Specificity is key when discussing these developments and the gradual societal dependence on technology throughout the 20th century and into the 21st, as to describe prior society as lacking any dependence on technology to function would be reductionist.

Prior to the developments of the 20th century, society did rely on technology to function, but not in the same capacity as it began to across the 20th century. Functionally, technology as a collective force served as a tool and support system of industry, travel, communication, agriculture, warfare, among many others, and thus society relied upon machinery (from steam-powered ploughs in agriculture to the interconnection of the railway) to maintain consistent levels of prosperity and enhance societal functioning (Rosenberg & Trajtenberg, 2004). This was a society that was technologically supported rather than wholly dependent, as its technical coverage was to an entirely lesser extent than that of the 20th century onwards. Therefore, one could conceivably argue that, if the technology of the pre-20th century eras ceased to function, in a hypothetical scenario, society would suffer and industries would collapse, yet many sectors of society would remain largely unaffected by this sudden lack of technology. Education, social

interactions, much business work outside of the sectors described, and the criminal justice system, among many others, would still arguably function somewhat unperturbed, as these sectors and aspects of society had not yet become entirely or even majoritively dependent upon technological developments. This can be furthered in that the majority of the populace still retained a relatively basic yet universal level of technical knowledge and skillsets to a degree that meant that their dependence upon technology to solve many of the practical problems of their daily lives did not entirely rely upon technological intervention.

This cannot be said of the period of prosperity in the 20th century mentioned previously, as the extent to which society had become dependent on technology was amplified exponentially from its previous iterations. Now, many of those sectors that technology had not yet become fundamental to the maintenance and functioning of had developed their own intrinsic technological solutions and bases. Thus, to return to that hypothetical scenario, a sudden disability of all technology in this period would not only disable the same sectors as before (likely to further significant extents as their dependence had become greater), but would also impair the abilities of a far wider range of sectors, including many or all of those whom had previously been mentioned to not have been technologically dependent, crippling society in a manner heretofore unseen (Furtado, 1982).

Subsequently, contemporary society has been described as having become not only post-industrial, but also technocratic: "post-industrial society is the main driver of technocratic influence on policy and politics" (Esmark, 2020). The technocracy is a society that is "rule(d) by experts" – that is to say, one governed, or at least maintained, by its reliance upon its technical experts (engineers, scientists, etc) and their associate expertise and use of technology (Burris, 1993). The definition of a technocratic society implies that it is not only dependent upon technology and technical innovation to function, but also somewhat dogmatically relies upon the potentials of technology to sustain that society through, in theory, any problem. This engenders a 'technological faith' that compounds with the dependence on technology to assist in the initial culmination of the technocracy, which encouraged the engagement of technical expertise with problems beyond the typical remit of that expertise's charge.

As a species, we have focused much of our collective efforts and energies into developing technologies not merely beyond what had previously been thought possible, but also beyond the ethical and/or moral boundaries by which some could argue we had previously been constrained by. For example, with the nuclear bombings of Hiroshima and Nagasaki in 1945, Robert Oppenheimer stated: "I do not believe that it will be possible to transcend the present crisis in a world in which the works of science are being used...for ends men hold evil", speaking of the resultant transitory period after WW2 in which science and technologies would be produced without serious concern for the potential ethical and moral consequences of their creation, instead focusing upon the practical, short-term and tangible solutions to problems (1945). Such sentiments are endemic of the technocratic society, and thus can be identified in contemporary society, as many technologies that have been developed and become commonplace in our daily lives have actual or potentially catastrophic long-term consequences from their continued development and use. Two of the most poignant examples of these can be seen in the environmental problems introduced, yet continually wrought, by an immeasurable number of technologies that fuel our society, such as the production and use of plastics, and the increasingly extensive levels of surveillance prevalent across all of society, many of the effects of which are argued to border on the authoritarian (Akbari, 2022).

These examples, as well as many others, will be explored further in this dissertation. However, it is important to note that they hardly scratch at the proverbial surface of the extent to which the technologies of our contemporary society have eclipsed even the dependence stage and have become ever more sovereign to our daily lives. We have not merely become dependent on technology in a practical sense, but also in a dogmatic reliance upon its ability to solve societal problems. As a result, technology as a collective force has become something wholly disparate within modern society – it has developed beyond society's advancement into a modern technocracy and emerged as something hegemonic within the societal complex. The emergence of this 'Technological Hegemony' (TH) has transcended the place of technology from one state of dependence into an entirely new one. Our base acceptance of, adoption of, and interaction with technologies have been undermined, becoming increasingly automatic, arguably

unconscious and suggestively presumptuous, as technology has become such an enduring and fundamental fixture of our modern lives; hegemonically attaining a commonsensical and 'status-quo'-like nature within the wider social consciousness. This work shall aim to establish the TH, which forms the core theory and argument of this dissertation, with hopes that establishing the theory here shall encourage further research into both the theory itself, as well as more serious consideration for the implications and potentialities that our modern technological intertwinement may have as a result of our growing technological dependence.

Prior to establishing this in full, however, we must consider the underlying elements that have given rise to this theory within contemporary society, to provide clarity to the modern technocracy's place within this new theory and how it's dynamics enabled the burgeoning of the TH. Chapter 1 shall establish such a baseline by looking at the nature of the modern technocracy, and its relationship with technological dependence and technological faith through discussion of academic literature such as Sean F. Johnston's 'Techno-Fixers: Origins and Implications of Technological Faith' (2020).

Once these foundational concepts have been established, Chapter 2 shall formally codify the concept and theory of the TH through discussion of its various dynamics and the Technology Acceptance Model (TAM), forming the nucleus of this dissertation from which the proceeding chapters shall examine further.

Chapter 3 will aim to actualise the theory by realising it within the subject area of Surveillance, discussing the theory within the context of surveillance technologies, and with reference to the Snowden Revelations.

Continuing with Chapter 3's discussion of the TH within surveillance, Chapter 4 shall endeavour to critically analyse the theoretical acumen of this new theory by considering it within the contexts of key perspectives within the field of Surveillance Studies. It shall also evaluate some potential avenues for further investigation that could benefit the theory through ardent research.

Chapter 1 – The Modern Technocracy

The concept of the 'technocracy' or 'technocratic society' was inspired by Frederick W. Taylor's movement of scientific management from the late-19th to early-20th century, which utilised scientific theory and methods to attempt to improve efficiency and productivity in varying workplaces by instituting these new methods managerially (Maier, 2002). This movement is seen to be the precursor to the concept of the technocracy due to its pursuit of an expertise-guided management system. The coining of the term is traditionally attributed to that of William Henry Smyth, whom coined the term in a 1919 article that furthered the concept of scientific management and, along with others, encompassed it into a form of 'industrial democracy', whereby influence over industrial decisions should be given to those technical workers whom possess the relevant technical expertise (Esmark, 2020). It is important to consider these origins, as from its inception the concept has been used to denote a hierarchical system that venerates a respect of technological knowledge and application, with little consideration for any non-technologically based alternatives.

The term took on a more widespread conceptual usage when the engineer Howard Scott founded the Technocracy movement of the 1930s, which took the prior ideals of the term's creation as a technically-informed managerial structure and developed it further into what would become the most common meaning associated with the concept. Scott's movement advocated for much political, economic and social change regarding what he described as an "imminent" forced reorganisation of society by increasingly impending technological developments (Oh, 2024). The concept of the technocracy became one of an immediately political nature, as it would be defined as a government or governing body of technicians that would be given authority over primarily economic powers in society, as their technical ability and expertise would be deemed more substantive and crucial to the emerging post-industrial society than the abilities of other, more traditional policy makers (Allen, 1933). Despite gaining traction in the 1930s, Scott's movement would ultimately decline, and the term would gradually take on a slightly more loose definition as it began to collectively encompass scientists and other technical experts within its governing 'technocrats' that would find technologically-informed

solutions to not only economic problems, but any potential problems across society (Allen, 1933).

Ultimately, to somewhat reframe this definition, the concept of a society that is governed not primarily by the politically minded but the technically minded may have been significantly ahead of its time, with this dissertation arguing that our modern society has somewhat naturally transitioned into a modern technocracy, which became crucial to the emergence of the Technological Hegemony (TH).

1.1   Dependence in a Technocratic Society

It can be considered as something of a subtext within the definitions of a technocracy that a pretence for a technocratic society is that it must depend and rely upon technology to function, as otherwise there would be little requirement for technical personnel to assume positions of governmental significance. It is this pretence that is of the utmost importance to consider within this dissertation, as modern technocratic society is significantly informed by this fact and thus this forms a founding aspect of the TH.

By the time the Technocracy movement had blossomed and later failed, society had already begun to evolve into a significantly more technologically dependent entity than it had prior. As described previously, a myriad of significant periods of technological development and innovation across the 20th century led to a drastic change in the dynamics between technology and the functioning of society. The culmination of these various periods of time saw many technical changes directly influence every sector of society, as gradual introductions of new technological conveniences and opportunities by both state and corporate entities enabled the populace to not only interface with the oncoming technologies for support, but also to adopt them as replacements for more traditional means of operation. For example, the confluence of technological developments across societal shifts such as WW1, urbanisation, economic growth and the automation of machinery meant that automobiles went from an expensive luxury mode of transport of roughly 700-800 privately owned cars in 1900, to over 1 million by 1930, and to over 10 million in 1967 in the UK (Simpson, 2020). Such a drastic change in the public accessibility to and adoption of automotive transport led to a gradual shift in the social attitudes towards transport, as jobs that would have been inaccessibly distant

to the worker before had now become easily accessible, but at the cost of the gradual normalisation of automotive dependency (be it privately owned cars or via public transport) as jobs gradually became located further away from homes than they had typically been prior, as urban-centres and societal infrastructure became increasingly structured to both account for and encourage automotive use (McIntosh, et al., 2014). This is but one example of the ways in which the increase in technological development and innovation enabled the eventual shift into a more technologically dependent, and therefore technocratic, society.

This can be observed ubiquitously in the modern day, as contemporary society typically relies upon technology in a logical, though complex, way. Functionally, at the macro level, our modern society's entire infrastructure relies upon technologies that facilitate the utility of all others: those which generate and harness electricity and those which retrieve and appropriate fossil fuels. These two foundational areas of technology have been relied upon increasingly since their inceptions and have become crucial building blocks of the modern world (Bhattacharyya, 2009). Of course, this is starting at the very bottom of the ladder of contemporary technological dependence, but it is nonetheless significant to consider when looking at our contemporary dependence on technology. Further dependence can be identified when considering our reliance upon computers, smartphones, the internet and online communications since the amplification of the 'information revolution' of the 1980s onward, all of which inform the functioning of practically every contemporary societal sector, such as governmental operations, healthcare, the criminal justice system, education, and the relaying of news, to name but a few. All of these technologies essentially contribute to our "increasing dependence on the digital" (Lyon, 2018), with even this very dissertation depending not only upon the interface of laptops and software to create it, but also the digitally disseminated academic sources that inform its entire discussion, as well as the technical capabilities for it to be properly processed and examined. This level of dependence is one which, from this dissertation's perspective, is indicative of a technocratic society, and whilst it would be ridiculous to argue that technical experts govern the modern societal landscape directly, it would be equally ridiculous to ignore the extent to which the dependence of society on technology provides these technicians with a significant degree of operating

power and/or influence, something which can (and has) become of great benefit to many power structures over time, as is explored later in Chapter 3 with the Snowden Revelations.

1.2   Technological Faith within the Technocracy

Despite its significance, dependence is not the only subtextual prerequisite to the establishment of a technocracy, as a significant degree of what is termed 'technological faith' is equally as contributory to the establishment of both the modern technocracy and subsequently the TH (Johnston, 2020). For a society to become technocratic, it must not merely depend upon the technology that already exists to continue to sustain it, but it must also rely upon the collective force of technology to continue to develop and innovate in order to continuously solve and 'fix' society's problems. This reliance through faith is one that borders the realms of dogma, as the populace must put some level of blind faith and hope into the competency of the technical experts of society to harness the technologies present, develop them further and successfully apply them across multitudinous societal problems. This is whilst also maintaining the faith that these technologies are secure, and remaining confident in the presumption that, given time and resources, technology will elevate society beyond many if not all of its obstacles and limitations (Johnston, 2020).

These statements are the essence of technological faith and the concept of the "technological fix" or "techno fix", which, it could be argued, are requirements for a technocracy to truly come to fruition (Johnston, 2020: 5). As Sean Johnston explores in his text 'Techno-Fixers', the concept of the 'technological fix' was established and defined by Dr Alvin Weinberg (Johnston, 2020). In 1966, Weinberg stated that "Our already deployed technological apparatus can contribute to the resolution of social questions", as he denotes the almost utopian benefits of allowing "technologists" to approach social problems as if they were technological problems; finding solutions using that same rationale and efficacy that guides the innovation of technological development (Weinberg, 1966). Johnston summarises Weinberg's assertions as stating that "technological inventiveness can reliably bypass traditional approaches...to address social problems", which is the quintessence of the 'techno fix' and 'technological faith' (2020: 3). In his promoting of the Technocracy movement, Scott was fond of utilising a

famous anecdote that was supposedly indicative of the power that faith in technology could have to solve societal problems; more specifically he used it to extend the idea of the "technological fix" as a social problem-solving viability (Johnston, 2017). The anecdote involved a situation in 1920s New York, in which a problem arose regarding passengers on 'streetcars' standing on the platforms at either end of the vessel, putting themselves at risk of injury. Scott would assert: "They put up signs first... prohibiting the dangerous practice, but the passengers still crowded the platform. Then they got ordinances passed, and the platform remained as crowded as before. Policeman, legislators, public service commissions all took a hand but to no effect; then the problem was put to an engineer... they built cars that didn't have platforms" (Johnston, 2020: 23). It is this example that Scott reportedly wielded as a primary aspect of his argument for the technocracy, and for faith in technology in general. The example served to demonstrate the ability of the technical expert to utilise their expertise and analytical ethic to rationally approach and solve a problem using technological means, at the subversion of all traditional methods. The example has survived into even modern technological discourse, as the same methodological approach is arguably utilised today to solve many societal problems, from environmental to medical to social issues (Johnston, 2020: 23).

It is these attitudes toward technological faith that instate a connotatively logical presumption in the social consciousness that, as technologies are researched and developed, they can be used to benefit the social totality beyond mere conveniences and maintenance of societal functioning under the technocracy. It is this presumption that denotes the essential characteristics of technological faith, as it draws on widely accepted cultural norms and beliefs regarding burgeoning technologies and their implications, as such values were established predominantly in the West during the 20th century with many coming to assess technological change as "inevitably life-transforming and unstoppable...as tantamount to societal progress" (Johnston, 2020: 4). These beliefs gradually became commonsensical, as influences from increasing urbanisation to expanding corporatism promoting consumer culture and beyond led technological solutions to permeate the social consciousness, as technological faith "translated passive popular confidences into active manipulations by zealous engineers"

(Johnston, 2020: 4). As the gradual dependence of society on technology and the conveniences it provides converged to imbue technology with that very inevitability that those of the early to mid-20th century had pondered, the 'technological fix' became orthodox, and generalised ideals of 'techno-optimism' were widespread, cementing the faith in technology that has remained and advanced exponentially through to the modern age (Johnston, 2020). This was even echoed in the cultural literature of the time, with the 'Golden Age of Science Fiction' of the 1940s, 50s and 60s blossoming a new level of cultural acceptance in the faith in technology, with the bestselling utopian idealisms of technocratic wonder and stories of incredible technological achievement such as those of Isaac Asimov and Arthur C Clarke saturating the genre at the time (Medrea, 2005). These further influenced other cultural media outlets such as cinema and music, further enhancing the endorsement of the limitless possibilities and progressive potentialities that the concepts of the 'techno fix' and technological faith promoted in the social consciousness.

As Johnston identifies, technology attained such a dogmatic status within society because its inherent adaptability and infinite potential for discerning solutions to problems is innately "seductive", which is why society gradually became technocratic (Johnston, 2020: 3). This is something akin to what sociologist Jacques Ellul presented as technology's "self-augmentation", whereby technology, by virtue of its artificial nature, possesses the capability to overcome any limitations in itself or its environment, given enough time and resource to either become tempered or temper itself to suit new outcomes, thereby reducing the human position in this equation to that of a hopeful observer, rather than an active participant (2018). This is congruent with Johnston's notion of technology's seductive potentialities, and links to technology's eventual hegemony later on as it acts with "an internal, intrinsic force, without decisive human intervention" (Ellul, 2018: 209). However, Johnston also points out the inherently pious nature of this "seductive idea", as he argues that a caveat to the supposed rationality of the 'technological fix' is that history indicates that such faith is innately futile – the introduction of technological developments to solve problems typically brings subsequent consequences that are likely to be later accounted for by further technological fixes, and so on the cycle repeats with little consideration of those

solutions which are not technologically dependent, and at the risk of significant societal problems (Johnston, 2020).

A potent example of this can be seen in the effects of the Data Protection Act 2018 (DPA), which introduced new data protection laws that aimed to tackle issues relating to personal data procurement, as the previous Data Protection Act had not accounted for advancements in the Internet, social media and Big Data (ICO, 2024: 4). As such, the 2018 Act aimed to provide security and convenience to all personal data that is handled by entities outside of the individual themselves, be they governmental, corporate, healthcare or other such entities. To this end, one of the core facets of this act was an enforced compliance to its policies regarding "unstructured manual information", which meant a significant upheaval of all hard paper copies of what constituted personal data for all entities working in the UK to be lawfully obligated, or otherwise heavily encouraged, to digitise all such documentation in compliance with the DPA regulations (ICO, 2024). This was done in an effort to combat all risks regarding disaster recovery, theft & loss, mishandling and tracking of personal data, among other problems that were innate to hard paper copies, and thus unless these risks were accounted for and met the stringent standards of the DPA, such physical data was required to be digitised (Popay, 2022). This act was arguably enacted as a technological fix for the inherent social problems of data security and defence. However, as is endemic of technological fixes and faith, the introduction of this act, and specifically the policies and guidelines pertaining to the digitisation of physical information, has brought with it some significant consequences regarding the dependence and faith in both the security of the systems at play, and in the successful functioning of those same systems.

Within the time of writing this dissertation, there have been two notable examples wherein these consequences have been laid bare. First of these is the ransomware attacks against Synnovis, a provider of lab services to the NHS particularly in South East London, that occurred on 3rd June 2024 in which a cyber-attack seized and encrypted significant portions of data and held it for ransom until payments were made (Synnovis, 2024). This attack caused a significant amount of disruption in the NHS, particularly within the South East of London as some of its largest trusts were rendered unable to completely function, with many patient records made inaccessible or new ones

incapable of being filed. Due to the recent nature of this attack, the overall extents of its disruption are not yet fully known; although as of the twelfth week after the attack (19th-25th August) the NHS has revealed that a total of 1,700 elective procedures and 10,104 acute outpatient appointments have been either cancelled or postponed (NHS, 2024). It can be seen here how, due to the digitisation that had been enforced by the DPA as a 'techno fix' and with faith in the abilities of the relevant technologies, the NHS suffered greatly due to its reliance on the security of its record keeping technologies.

The second example further exemplifies the unaccounted-for consequences of technological fixes and the cyclical nature of these problems, as on 19th July 2024 Microsoft was issued a glitched software update by its associate cybersecurity firm CrowdStrike, which caused a global IT outage across various sectors of society (Plummer, 2024). To continue the trend of the previous example for the sake of a more focused argument, the effect on the NHS shall be discussed. Whilst somewhat ongoing, the outage initially meant that a significant number of systems across the NHS (and the world) that ran on Microsoft's Windows OS were experiencing complete IT breakdowns, as many displayed a "blue screen of death" or simply failed to fully function (Cerullo, 2024). Within the NHS, this meant that not only could files and records not be accessed for a period of time, but many of the basic interfaces between the workers of the NHS and the systems and records were also inoperable, thereby leaving whole sections of the NHS system at a standstill. Due to the somewhat ongoing nature of this issue, the exact extent of the disruptions and problems caused by this outage has not yet been fully quantified, but it is pertinent to consider the exhaustive number of appointments and procedures that have been disrupted since the outage and that, despite the NHS system having been stated as "back online" as of 22nd July, there remains a considerable backlog caused by the outage (Trendall, 2024). As mentioned before, this outage serves as another example of how such technological faith put into fixes such as the DPA can be rendered futile and arguably harmful when such significant amounts of crucial information and functioning are dependent upon the successful functioning of relevant technologies. Whilst these examples do not serve to discredit the benefits of the DPA, it is important to consider that, had the DPA not enforced the complete digitisation of all NHS data, many of the crucial appointments and operations that had to be postponed could have potentially

been continued with physical copies of that data, irrespective of any cyber-attacks or IT outages.

It is this inherently flawed faith in technology that has converged and compounded with society's dependence on a fundamental level that has ultimately coalesced into the technocracy that society finds itself as today. It is from here that the TH has emerged, as a natural succession from the dependence and reliance on technology found within the modern technocracy.

Chapter 2 – Codifying the Technological Hegemony

The concept of the Technological Hegemony (TH) was borne of the identification of a perceived tension between the academic understandings of how we accept, adopt and interact with technology, and the arguable reality of our dependent interaction with technology in the modern technocratic world. The argument presented here is that the TH supersedes the dominant assertions regarding our interface with technology within the current academic literature, and that this hegemonic status has directly emerged from the foundations of the modern technocracy. This chapter aims to provide a codifying overview of the dynamics that form this theorised concept, so as to formally establish and explore what the TH is, what it means and why it is significant.

2.1   Etymological Foundations, Clarifications & Prior Uses

The term 'technological hegemony' was intricately chosen to define the overarching status that technology as a collective force has achieved in contemporary society. As presented in the previous chapter, the societal culmination of our increasing dependence and faith in technology has been our steady advancement into a modern technocracy, which laid the groundwork for the emergence of the TH. To fully understand why this concept was termed a hegemony, and to lend further understanding to the explanation of its hegemonic impact later in this chapter, it is prudent to briefly discuss the etymological background of the term 'hegemony' before proceeding.

Originally, 'hegemony' was typically considered to be that of the imperially imposed, either internally or externally, domination of a state over its population, typically militarily or through overt enforced idealism (Schenoni, 2019). Examples of this type of hegemony can be seen historically with entities such as the British Empire in the mid-to-late 19th century (Porter, 1999), whilst more contemporary examples are those of the US and USSR during the Cold War period, each acting as competing hegemons during this time (Mumford, 2013). This somewhat limited definition of the term was developed further and expanded upon by Antonio Gramsci when he devised the concept of 'Cultural Hegemony', which took the core principles of hegemony and argued that this form of domination is perpetrated by a "ruling class" that maintains and legitimises its authority by shaping the culture of a particular society; influencing the beliefs, behaviours, values

and perspectives of those under the hegemon's power to construct the cultural values of this "ruling class" into the accepted cultural norm (Bullock & Trombley, 1999). Such a hegemony precludes any immediately overt indications of dominance of an alien or artificial ideology, as the ruling class misrepresents their ideological dominance as commonsensical, so as to become the status quo, rather than as an immediately obvious, and thus more clearly resistible, enforcement of ideals (Lears, 1985).

Gramsci's concept looks at the hegemony in a far more sociological format, one that becomes far more relevant to the concept of the TH, as the evolution of dominance from one typically more authoritarian in nature to one of an indirectly-imposed authority that is gradually and consensually accepted en masse is far closer to what can be seen with technology as a force in the modern world; wherein technology acts somewhat as the 'ruling class' that Gramsci discerned. Both Gramsci and Stuart Hall, a proponent of Gramsci's theory whom built upon it with his own interpretations, have stated that a hegemony is never fully achieved because of divisions within the objectives and attitudes of the 'ruling class', but this is something that does not concern the presented concept of the TH (Bhabha, 2015). The TH's status as an apolitical force within the social totality precludes any conflicting objectives within itself, as it acts somewhat deterministically. Today, it is common that the term incorporates these more sociological aspects that Gramsci introduced, and thus the term 'hegemony' is contemporarily defined as "The dominance of one group over another, often supported by legitimating norms and ideas. The term is ...used to describe the relatively dominant position of a particular set of ideas and their associated tendency to become commonsensical and intuitive, thereby inhibiting the dissemination or even articulation of alternative ideas" (Rosamond, 2024). It is from this definition, and particular aspects of the impact that the TH is argued to have in this chapter, that the attachment of the term 'hegemony' became essential to the definition and understanding of the proposed concept.

Before further classifying this concept, however, it is important to also consider that there have been two previous uses of the term 'technological hegemony' which are disparate from that of this dissertation's proposal. The first of these is a term described both as 'technological hegemony' and 'digital hegemony' which is utilised by the Chinese Communist Party to describe and criticise the "digital monopoly" that specifically the

United States has in the online space (Chen, 2022). This use of the term is one that serves as a concept applied solely to the US and 'Silicon Valley' which, whilst having some merit in its intention, may be considerably biased in its application. Thus, whilst this is utilising the phrase, it is not being used to designate a formally considered concept that can be applied elsewhere, nor does it speak to technology as a whole as it instead focuses on the online space.

The second of these uses finds root in political science, as the term is utilised in articles such as that of Drezner to describe and compare the technological innovations of particular nations, such as the US, UK and Japan, against their abilities to grow in various sectors. For example, in Drezner's article he focuses on the technological innovativeness of these nations and its effect on their economic growth (Drezner, 2001). As before, this use of the term is more minutely focused upon the interrelationships between specific aspects of technology and particular political and economic factors of society. Therefore, the use of the term once again merely gives voice to convey a specific meaning in context, rather than forming a coherent theory or concept. Considering these, the concept further established in this section and dissertation as a whole should be differentiated from them, as they are highly politicised and limited uses of the terminology.

Further to these etymological facets of the term, it is also pertinent to briefly examine how this socio-political concept of the 'hegemony' is being applied to the technological force itself, as the prior applications of the concept to technology have been niche and unrefined.

Hegemony is being applied in this context without regard to the aspects of enforced dominance from one group to another. The concept of a 'ruling class' is present but not in the traditional sense, as rather than a particular party it is instead the apolitical technological force itself. The TH acts hegemonically in the sense that the technological force has attained a level of dominance over modern society that has transcended its immediately material and practical nature (as induced by dependence and reliance upon it) and has thereby become altogether ethereal in the social consciousness. Technology and its progress has become a legitimated practical value that is commonsensical and somewhat unquestioned, something that has progressed to become an essential point of acceptance in modern life and, within the comprehensive zeitgeist of the vast majority

of the populace, critical to the functioning of both each person's daily life as well as society as a whole. This forms a somewhat unconscious dogmatic piousness regarding technology in society, something that resembles the subtly enforced values and ideologies, whilst diminishing alternative notions, that is typical of a hegemony.

With these finer points concerning the etymological acumen of the concept having been examined, we shall now discuss how the modern technocracy, established in Chapter 1, has precipitated the emergence of the TH directly.

2.2   The Modern Technocracy's role: Dependence & Faith

As previously explained in Chapter 1, technological dependence is not merely a foundational reality for this concept, but it is also a fundamental truth of the modern age. Although it's role in contributing to the emergence of the TH is somewhat self-evident, it is still important to clarify for the sake of cognizance. Under the technocracy, this dissertation argues that as our societies have increasingly intertwined with technology over the last century, each individual of those societies has gradually lost degrees of their actionable freedom and abilities to retain levels of self-sufficiency, as what may have once been a behaviour that they had previously undertaken (or had the potentiality to have undertaken) themselves became something incrementally subverted and displaced by technological means (Ra, et al., 2019). With these changes came political, corporate and social reinforcements that more formally replaced the 'older' more analog ways of doing things with electronic and digital alternatives, as described in previous sections. Particularly noticeable within the practical abilities of younger people within less technologically dependent environments, the widespread adoption of such technological changes endeavoured a gradual withdrawal of people's considerations for these more analog methods of doing things, as well as the even more gradual decline in their knowledge and ability to perform such methods in the first place (Joe, et al., 2013). This has meant that, by the dawn of the 21st century, increasingly fewer people in modern technocratic societies would have the knowledge to perform tasks and behaviours that may have been practically universal skills even 50 years prior, as their conjunction with technology across their lives proved to indelibly obscure the actual skills, abilities and knowledge required of them for such behaviours, as well as any immediately logical consideration for why such antiquated methods would be superior to those

technological methods which supplanted them (Meserve, 1998). This, in turn, has resulted in a steady increase in both personal and societal dependence upon technology and thus the expertise to enable the functioning of even basic services, and has maintained a strong technocratic grip on individuals' abilities to solve a profuse number of issues across all of society without technological aid.

Furthermore, beyond this supplanted effect on the knowledge and skills that had previously been deemed significant for individual and societal functioning, the gradual corporatisation of much of the world's economy has led to a further dependence upon previously unnecessary or 'frivolous' technologies to provide adequate hospitalities such as entertainment (Leiss, 1990). Many people, particularly young people, in predominantly Western countries increasingly associate technologies with not only basic functions of society, but also with basic aspects of satisfying the human condition: if you removed access to film, TV, video games, social media and the internet, among others, many people, especially young people, will not simply find themselves bored – they will find themselves despondent (Kushlev, et al., 2017). This also extends to the dependence upon the 'consumer mentality' that has become epidemic in the last century, as indulgence in consumerist frivolities has become a dependent aspect of the world economy, let alone the enjoyment of many individuals' lives, and is equally dependent upon the functioning of the technologies that perpetuate them (Leiss, 1990).

When considering this gradual societal dependence and its relation to the emergence of the TH, we should consider a hypothetical alternative. In a hypothetical 'inversed' society that does not require technology to function, it would be unlikely that such a society would form a hegemonic status-quo regarding technology's place within it. Without a dependent need for technology to function, the individuals of this society, and the society itself as a whole, would be capable of consciously exploring alternative possibilities with regard to technology's place within their own lives and their options of interacting with it, as well as solutions to problems without immediate concern for their lack of knowledge or expertise regarding the technologies involved in solving these problems, whilst also considering the potential for alternative solutions not demanding technologically-determined aid. This is in excess of the potential that a non-dependent society would enable individuals to choose to interface with a majority of technologies in the first place,

whereas the TH ensures that most technologies have become an unavoidable necessity for everyone in society to depend upon. It is this technocratic dependency on technology that has provided a foundational environment for the emergence of the TH in a practical sense, but also in its contribution to the legitimising of technology as an essential facet of societal infrastructure in the collective social consciousness.

Moreover, this dependence has interacted with our technological faith to further contribute to the emergence of the TH. Engineers and scientists have progressed from the harbingers of invention prior to our technological dependence, to the entrusted innovators of contemporary society - looked to for their technocratic expertise to resolve problems. Our gradual dependence on technology has interacted with the seductiveness of the potential of technologies to accomplish any task, given time and capability, to more absolutely establish the modern technocracy, and thus has encouraged and reinforced these presumptions of technological faith (Johnston, 2020). As Stuart Hall once stated: "power cannot be captured by thinking exclusively in terms of force or coercion: power also seduces, solicits, induces, (and) wins consent", and this perfectly orates the way by which technological faith has impacted the emergence of the TH (Hall, 1997). Our faith in technology to improve and enhance our lives and societies, as well as our reliance upon it to resolve societal problems, compounds in on itself to further generate the conditions under which the TH has emerged.

As mentioned in Chapter 1, our faith in the technological force to overcome humanity's issues comes as a result of the assurances of technical experts and the logical assumptions made regarding the utility of technology itself in resolving societal problems. In contemporary society, it is arguably common for the social totality to ascribe the resolution of problems such as, for example, those of environmental issues to advancements in technology that will eventually overcome the presented issue, be it via direct technological intervention to solve the problem or by technological advancement to limit or restrict the extent of the problem and/or its damage. Environmental issues are consistently approached in this manner via scientific, engineering and, therefore, technological means, as modern issues regarding climate change and the global environmental crisis rely upon devised solutions that tend to rely upon various technologies to replace, supplant or subvert current harmful technologies.

For example, in April 2024 researchers from the University of California San Diego reported having developed a "plastic-eating bacteria" that should "mitigate plastic pollution in nature" by producing disposable plastics that contain polyurethane-digesting bacteria that will remain dormant until activation later on, as polyurethane is a difficult component of plastic to recycle (Briggs, 2024). This exemplifies the discussion on technological faith, as this potential solution to plastic pollution, whilst tempting, is somewhat undermined by the contrasting arguments to simply rescind production using plastics such as polyurethane and replacing them with more recycle friendly materials. This would be a move that, whilst an upheaval of many industries, would promote a better solution for the environment and humanity that would go beyond simply 'mitigating' the issue of pollution (Adetunji, et al., 2021). Technical solutions such as these have been described as "often short term and incomplete, and could consequently camouflage the ultimate sources of larger problems and the nature of genuinely satisfactory solutions" (Johnston, 2020: 20).

Thus, our faith in technology endures and acts alongside our technological dependence to generate an atmosphere wherein technology has emerged with a hegemonic status, as it has arguably become a predominantly automatic assumption to look for a resolution within the confines of technological options.

2.3 The Dynamics of the Technological Hegemony

Technology has emerged as a hegemonic 'ruling class' with normalised 'ideals' and 'values' via its subversion of the basic human interaction with technology. Whilst more traditional 'ruling classes' (governments, corporations, etc) may utilise technology to their advantage in varying forms of dominance, it is only because of technology's status as a hegemonic 'ruling class' that such uses are possible in the first place, as it supersedes the hegemonic values of other power structures, something explored further in Chapter 3. To quote Ellul, technology has "become a reality in itself, self-sufficient, with its special laws and its own determinations" (2009), whereby it exists as an omnipresent yet obfuscated source of determined reliance, inalienable in its use and adoption.

On a human level, many previous ventures of psychological and sociological research, such as the Theory of Reasoned Action, argued that an individual's or groups' interfacing with a technology is something that remained a conscious and rational decision of acceptance and adoption by the actors, and this remained as a relative consensus opinion up until the mid-1980s, when Fred Davis devised his theory of the Technology Acceptance Model (TAM) (Marangunić & Granić, 2015: 84). The TAM was outlined to serve as a reliable model that could determine the motivating factors behind how and why a technology would be accepted and utilised (Davis, et al., 1989). To fully articulate how exactly technology has become hegemonic in nature, it is prudent to utilise this model (specifically its most prominent and recent permutation) to provide a basis for the current academic understanding of peoples' interface with technology and integrate the argument for the hegemonic factors of technology into such an equation. To note before proceeding, there exists a grander theory/model of technology acceptance and use: the Unified Theory of Acceptance and Use of Technology, which incorporates the TAM into its unified theory to explain the acceptance of technology, but specifically within organisational settings (Venkatesh, et al., 2003: 471). Because of this, it has been considered beyond the scope of this discussion as the TAM acts as a sufficient and well-considered model for technological interface at the individual level, and thus prudent for use in this context.

Since its inception, the TAM has been expanded upon significantly, and has become "a leading model in explaining and predicting system use. As a matter of fact, TAM has become so popular that it has been cited in most of the research that deals with user acceptance of technology" (Marangunić & Granić, 2015: 86). The most recent iteration of the TAM is the TAM 3, which was developed by Venkatesh and Bala, evolving from Venkatesh's previous work with Davis on the TAM 2 (2008). The TAM 3, shown in Figure 1 (Boughzala, 2014), takes the core elements established across previous permutations of the model (namely the foundational ideas that an individual's perception of a technology's 'ease of use' functioned to inform their perception of its 'usefulness', thereby informing the actors 'intention toward using' the technology, culminating in its acceptance and use) and focuses on establishing the external variables that influence the 'Perceived Ease of Use' (PEU) (Davis, et al., 1989). This is in excess of the variables

established by the TAM 2 for the 'Perceived Usefulness' (PU) (Marangunić & Granić, 2015: 86).

As Figure 1 shows, the essential concept of the TAM is that technology use, at an individual level, is predicated on an individual's 'behavioural intention' (BI) to use that technology, which itself is informed by the essential components of PU and PEU. PU has been defined simply as the degree of usefulness by which a technology is perceived to
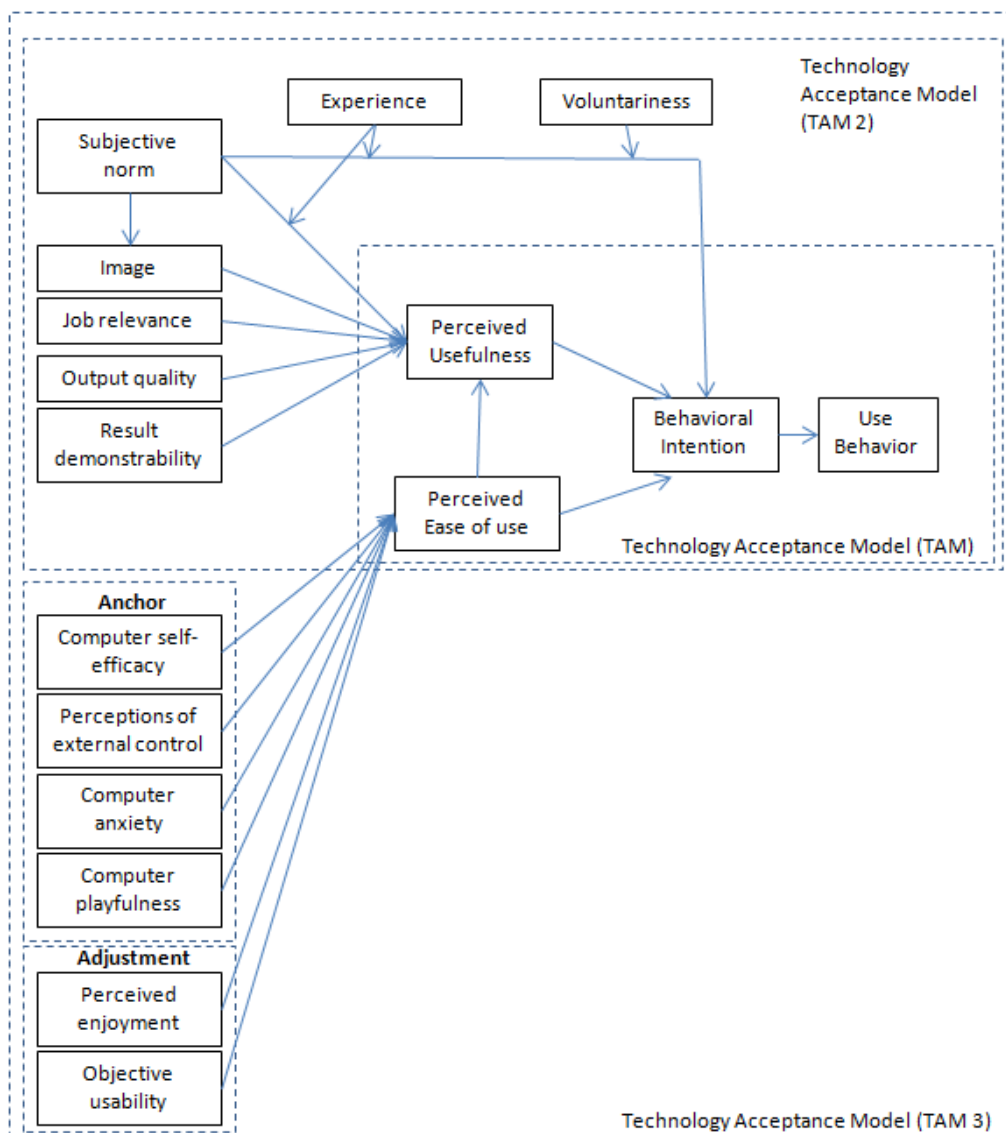

Figure 1. The Technology Acceptance Model (TAM) 1, 2 and 3. *(Boughzala, 2014)*

have by the user within a given context, and PEU is defined as the degree to which using the technology will be simple and free of effort (Marangunić & Granić, 2015: 85). PEU has been found to directly affect the PU by determining the degree to which something can be useful via its ease of use; if a technology was deemed difficult to use, this would likely

negatively impact the perceived utility of it (Marangunić & Granić, 2015: 85). Both of these factors influence the BI of the user, which acts as the resultant intention of the user to utilize the technology or not. In the TAM 3, various external variables have been identified that act as determinants to the PU and the PEU (Venkatesh & Bala, 2008). For the sake of brevity, all variables will not be explored in depth, but instead will be referred to as they become relevant to the integration of the TH.

This dissertation argues that technology has, by virtue of its hegemonic status, superseded the established aspects of the TAM 3, and instead acts as an unconscious, technocratic baseline from which the model builds upon. This is primarily argued on the basis that, as previously discussed, a hegemony encourages the holding of values that have become commonsensical and unconsciously accepted by a populace, thus enabling the 'ruling class' dominance over the populace via a gradually tempered alignment of their values.

Technology, acting contemporaneously as this 'ruling class', has emerged as something that, through technocratic advancement, has become an equally unconscious and commonsensical structural component in the social consciousness. Within the TAM, the previously described components rely upon a somewhat implied assumption that the individual acceptances and uses of technology can be explained via the rationality and conscious agency of the individual actor, and thus most technology usage, at least initially per person, can be derived as autonomous uses of one's perceptions regarding a technology. This is furthered by the external variables established for PU and PEU, namely those of 'subjective norm', 'image', 'job relevance', and the 'adjustment' variables. 'Subjective norm' pertains to the influence of others on a user's decision to utilise a technology or not, whilst 'image' involves the desire of the user to maintain a favourable standing among peers (Marangunić & Granić, 2015: 86). 'Job relevance' involves the degree to which the technology is applicable to the task, and the 'Adjustment' subset of variables each pertain to "beliefs that are shaped based on direct experience with the target system" (Marangunić & Granić, 2015: 87). Each of these variables requires some degree of conscious reflection or consideration that influences their perception of the ease of use and utility of a technology. It is these variables that build upon what the TH

acts as foundational to, as in modern society, many users do not consciously consider in their acceptance, adoption and subsequent usage of technology.

For example, a technology such as the computer is something individuals would have actively chosen to interact with via the process described by the TAM in times prior to the emergence of the TH, as such technology was only gradually becoming increasingly essential to societal functioning. Thus, the dependence and faith in it was lacking and left to more individual perspectives, in congruence with the TAM. However, within the TH, individuals must now accept and adopt the use of computers in their lives as a social necessity – without them, they risk strains on socio-economic security, social inclusion and social cohesion, among other problems (Rama Murthy & Mani, 2013).

It is here wherein the acceptance and use of the vast majority of the technological force has become hegemonic, as the components of PU and PEU are superseded by the *requirement* to interface with computers which, especially in younger generations, arguably engenders an unconscious commonsensiality regarding their perceptions of use and their adoption. The phrase 'vast majority' was utilised here as it would be reductionist to say that all technology has this unconscious hegemonic effect – there are arguably extremes of technology within each context that would elicit more specific behaviours and thought processes in congruence with the TAM, such as utilising technologies outside of typical logical contexts or using particularly 'high risk' or 'emergent' technologies, such as AI, although it cannot be said that these technologies may not become hegemonic in nature in the future. Also, the further hegemonic impact of our reliance upon computers can be seen in the previous examples of the 2024 NHS cyber-attack and Microsoft system outage, as despite both having such catastrophic effects resultant of our dependency on them, the vast majority of people did not question the base use of computers in any serious capacity within these events, as such serious sentiments would be considered unfeasible and therefore nonsensical, and thus arguably further evidence of the TH.

Furthermore, technology rejection is a seldom researched but arguably crucial area of study when considering the hegemonic dynamics of technology. In an article that discerns the legitimacy of technology rejection as its own distinctive area of study, Rama Murthy and Mani establish that technology rejection has, in all research pertaining to

technology acceptance, been mitigated to a failure of the respective processes at work in models such as the TAM, wherein an individual unconsciously rejects a technology simply because of the failure of, for example, it's PU (2013). This, they argue, is false, and instead rejection should be considered a distinctive, conscious behaviour within modern society, as the abundance of technology and its intertwinement with the social totality arguably shifts it into a form of active, deliberate and rational rejection by non-users (Rama Murthy & Mani, 2013). This furthers the sentiments of the TH, as the widespread acceptance and adoption is to such extents across modern society that it evokes a sense of generalised, commonsensical adoption. The act of rejecting technologies, for any number of reasons, on an individual basis could therefore be considered a form of social deviance, one that is expressed in a similar form to the "inhibiting of dissemination or articulation of alternative ideas" typical of deviance from a hegemony (Rosamond, 2024). Because of these assertions, it is conceivable that, under the TH, the conscious rationale of technology acceptance and use has been flipped: the base acceptance of technology has become an unconscious baseline from which the components of TAM build upon in the modern day, whilst the previously less considered act of technology rejection has become a far more conscious and deliberate action, akin to social deviance. This is also congruent with an argument of Gramsci's regarding the dynamics of a hegemony, as he argues that hegemonic power is always contested, and thus one could consider the notion that technological rejection acts as a furtherance of a constant contestation of the TH's power, something that deviates from its aims and objectives by rejecting it's use (Davidson, 2005).

Technology has thus arguably achieved a hegemonic status within contemporary society, a status wherein the many technologies around us supersede our cognitive mechanism to consciously choose to interface with them, as devised by the TAM, and instead they have become unconscious, unilaterally accepted aspects of modern life that we, regardless of our individualist perceptions, simply accept as essential aspects of the modern world.

Chapter 3 - Surveillance Technology: A Case Study

The concept of the Technological Hegemony (TH) is somewhat obscure within both a theoretical and practical context, both due to its nature as an original theory regarding technology within the modern day, and due to the relatively niche nature of the research area of acceptance, adoption, and use of technology, as opposed to other areas of the social sciences. Therefore, this chapter aims to explore the validity and legitimacy of the theory by actualising it within a real, tangible context. There is perhaps no better example of this than that of surveillance technology, something that has become increasingly pervasive within our modern society. To further this actualisation, critical examination utilizing key theoretical approaches and ideas from within surveillance studies shall further explore this context of surveillance in the proceeding chapter.

Surveillance technology has become omnipresent within our modern society. On a daily basis, any particular individual could interface with an innumerable number of surveillance technologies, both via their own elective technological interactions and through externally imposed passive interactions. According to David Lyon, a prominent figure within the field of Surveillance Studies, surveillance is both a "distinctive product of the modern world" (2003: 161) and yet has rapidly become "mundane" (2018) and "embedded in every aspect of life" (2001: 1). This pervasiveness and the notion that surveillance is an emergent aspect of the modern age that has quickly become integral to society echoes the technocratic and hegemonic extents of technology in our society, as described in previous chapters. Lyon argues that we have become a "Surveillance Society", one wherein surveillance technology consistently acts as a product resultant of the social totality's increasing dependence upon their mediating interaction with the majority of modern technological standards and the wider society as a whole, "computers mediate more and more between what was once thought of as 'individuals' and 'society'" (2003: 161). This 'surveillance society' has arguably materialised alongside the emergence and development of the TH, as once our dependence and reliance upon technology reached a particular threshold it gradually induced facets of itself hegemonically into the wider societal structure and consciousness. Surveillance acts as a prime example of this, with the technologies involved in its propagation emerging towards the reaching of this threshold and having since expanded quickly in their

adoption and use, engulfing every sector of society. Lyon aptly described surveillance technologies as "leaky containers" due to this rapid yet gradual process, and it is the resultant place of surveillance technology within contemporary society that displays the most prominent features of the TH (2001: 8).

Contemporaneously, surveillance technologies are omnipresent in arguably the most literal sense of the term: they are present everywhere, all the time (Grünberg, 2013). From more literal hardware such as CCTV cameras littering streets, shopping centres, office spaces, healthcare institutions, etc, to more subtle software that enables surveillant practices across our smartphones, computers, social media, streaming services, etc. All of these methods, and an abundance of others, collect and store data about each individual's interface with effectively every form of technology that they encounter daily, with these extents likely to increase as society continues to develop and integrate these technologies further (Underwood & Saiedian, 2021). Within this context, the TH can be more explicitly identified, as for most people the act of interfacing with a technology in the modern day is unobtrusively coincided with their submission and cooperation with a surveillance technology. This passive and 'background' interface with surveillance within most other technologies also, in congruence with the TH, supersedes the workings of the TAM, as there are no processes of PU or PEU that inform one's acceptance and use of a surveillance technology, instead the processes of the TAM are, within the TAM's approach, attached to the other 'base' technology with which a user is interfacing. Be it as simple as a digital time and date of the use of a card machine, a recording of a phone conversation, or a CCTV recording of an individual within a public place. Considering the wealth of these surveillant technologies that have 'leaked' into the uses of most other technologies, it is understandably unlikely that one would be able to consciously negate interfacing with surveillance technologies in any practical sense, whilst still utilising the desired 'base' technology. This is even less conceivable when considering that one would also have to consciously consider accepting to interface with these surveillance technologies consistently on a daily basis, in excess of considering the use of the 'base' technologies. Moreover, one would have to constantly consider the potential security risks and other aspects pertaining to their interface, such as the surrendering of varying degrees of one's privacy. Consequently, this means that, for most people, surveillance

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technology and its societal pervasiveness has become an unconscious acceptance, something that the rejection of would likely bring considerable inconvenience to the individual, and that the conscious consideration of proves too taxing and, arguably, nonsensical due to its overwhelming presence, regardless of one's preferences. This is the TH at work, as the unquestioning and presumed inevitability of the acceptance, adoption and use of surveillance technology in modern society conforms tremendously with the aforementioned hegemonic facets of technology in the modern day, as well as it's consistent superseding of the TAM.

Following this notion, we should further consider the significance of privacy and its gradual decline under the 'surveillance society', and therefore the TH. The technocratic dependency of modern society has engendered an ever-widening distance from significant levels of privacy, as the growth of society has led to the abundance of surveillance technologies. This has constituted a gradual transition from a society wherein privacy, autonomy of information and a discretionary level of anonymity are foundational and forthright; into a society whereby each individual cannot participate without disclosing considerable quantities of one's information unto various interested parties. These parties range from the State to corporations, and to the public itself, with each collecting data seemingly regardless of the perceived significance of the information for both the individual parties' interests and the proliferation of the wider information economy and 'Big Data' (Andrejevic & Gates, 2014). Since 1890, privacy has been considered a legal human right, with Brandeis and Warren arguing such in their article 'The Right to Privacy' (Bratman, 2001). This principle exists through to the modern day, with many countries having enacted laws to retain individuals' rights to privacy, such as the European Convention on Human Rights, wherein Article 8 maintains many such notions, such as "everyone has the right to respect for his private and family life" (Equality and Human Rights Commission, 2021). Despite policies and laws such as these, the expansion of surveillance technologies and their increasing assimilation into the wider socio-technological fabric has meant that one's privacy must frequently be surrendered, to varying extents, in order to function and assume a convenient and conventional social standing within society (Keenan, 2014).

3.1   The Snowden Connection

These assertions are congruent with the realities of many modern-day exposés that have uncovered abuses of such ubiquitous surveillance technologies for the gain of various power structures, typically those of a state, such as the Snowden Revelations. In 2013, NSA analyst Edward Snowden became a whistleblower by publicly exposing the significant extents of mass surveillance and data collection by the NSA and, in turn, the US Government (Greenwald, 2014). His revelations proved that the US Government and other governments, such as that of Britain, had collaborated to sanction extensive mass surveillance of a huge variety of information sources: from all data produced through telecommunications giants such as Verizon and AT&T, to mass amounts of information produced and collected by major internet companies such as Google and Facebook (Greenwald, 2014). This particular system was known as PRISM, and it was one of many programs and systems utilised to enable the NSA to access, record, retain and analyse any piece of this mass data collection, and the data itself enabled them to intrude upon the privacies of any individual that interfaced with the relevant technologies (Florek, 2013). With relation to the previously stated notions of surveillance technology within the TH, there is an argument to be made that both the technocratic precedent and the hegemonic status of technology have played a considerable role in the capability for such an abuse to be actioned in the first place, as well as be attributed to the continued passive acceptance and use of surveillance technologies today, despite the blatant and public evidences of abuse of such technologies.

To first address the TH's role in the initial capability for the surveillance abuses of the mentioned power structures, one does not need to consider much more than the technocratic basis for such mass surveillance and data collection. In order for the abuses of the Snowden revelations to have been perpetrated, there was a prerequisite for the sufficient distribution of surveillance technologies, and/or technologies capable of being utilised for surveillance practices, across the relevant populaces to enable such mass surveillance in the first place. Thus, the modern technocracy's extent of dependence and the TH's ensuant passive acceptance and widespread adoption of surveillance technologies provided the technological basis for the possibility and capability of the

more traditional conceptions of 'ruling class' power structures to utilise them for their own purposes, by ensuring widespread technological usage.

Furthermore, the responses to the Snowden revelations are equally congruent with the effects of the TH. In the wake of the Snowden revelations, there were considerable questions raised regarding surveillance technology use within our society (Lyon, 2015). Despite the ensuant uproar, however, there were primarily only law and policy changes regarding these breaches that aimed at restricting the potential for any future abuses of surveillance technologies (Halbert & Larsson, 2015). However, the actual usage of surveillance technologies across society and their resultant capability and proliferation of data collection remained unperturbed, and thus the public have had to rely upon the efficacy of the resultant policy changes to protect their privacy and data. This response, with regards to the TH, is something that arguably further evidences the TH, as even when provided with damning evidence of abuses of power such as those of the Snowden Revelations, the majority of society failed to question the technological foundations of the problems, instead acting to enforce policy changes. These policy changes, whilst admirable in their intention, arguably fail to see the larger picture – the facts of the Snowden Revelations and the many data and privacy breaches therein, were procured irrespective of the laws and policies in place at the time and, therefore, there remains a barrier to trust that such breaches would not happen again, due to their potentiality irrespective of the policies and laws resultant of the Snowden Revelations. This, like the environmental examples mentioned in Chapter 2, indicates the TH's ability to somewhat nullify the considerations for non-technologically based options and solutions, instead prioritising the maintenance and presence of these technologies and merely altering the rules by which they are utilized.

Chapter 4 – A Critical Examination of the Technological Hegemony within Surveillance Studies

Having now discussed the Technological Hegemony (TH) within the context of surveillance more generally, we shall now examine some key academic figures and literature from within the field of Surveillance Studies to identify any interrelations between the TH and this area of study. This chapter shall endeavour to find areas of coherence between the literature and this dissertation, and any potential areas of dissonance that might be accounted for, as well as evaluating any potentials for expansion or improvement of this theory through future research.

4.1   Contextualising Foucault

Michel Foucault retains a position of prominence within the field of Surveillance Studies, as his concepts and theories regarding the "disciplinary society" and the "panopticon" are almost unilaterally considered fundamental to an understanding of the dynamics of surveillance and, by extension, surveillance technology (Wood, 2003). To this end, Foucault serves as a significant point of discussion when considering the theoretical legitimacy of the TH within surveillance studies. The 'disciplinary society' is described as a society that utilises a distribution of discipline, acting as a mechanism of power, across society to institute an exercise of power and control. Surveillance forms a central pillar in the enforcement of this discipline, and Foucault identified the concept of the panopticon as an ideal metaphor for the use of surveillance to exercise this disciplinary power across society (Wood, 2003).

Despite the theoretical significance of these two core Foucauldian principles within Surveillance Studies, they can be considered somewhat superfluous within the discussion of the TH. Specifically considering the panopticon, whilst Foucault's assertions regarding the maintenance of discipline through surveillance by the 'few' unto the 'many' is appropriate within Surveillance Studies, the place of the TH within such a concept is not exactly clear, as there is no discernible bearing on how we perceive and interface with technology. There are only two potential relevance's that this dissertation can derive from the panopticon unto the TH. First is that, in the modern day, the panoptic institution of disciplinary surveillance is something that is preceded and precipitated by

the hegemonic presence of the surveillance technologies that enable it, thereby implying that the panopticon could build upon the foundations set by the TH. However, this link is only tenuous, as contemporaries such as Wood identify that this application is temporally limited to the extents of surveillance within contemporary society, as the base power dynamics of Panopticism extend beyond the prerequisite for the TH as contemporary surveillance technologies did not exist when Foucault devised his theory (Wood, 2016). Second is the docility induced by the disciplinary society, a concept Foucault described as 'docile bodies'.

Foucault identified that, through constant exposure and reprimand as a result of surveillance, the subjects of surveillance enter a state of docility as the excessive enforced discipline eventually becomes internalised (Foucault, 2012). This imposes an automatic arrangement of behaviours and cognitions that render those subjects inert in the face of further adversity. This acts as a limiting factor set upon their internal machinations that negates most notions of resistance through a somewhat passive enforcement of power unto them, thereby acting as a fundamental factor in the endurance of a disciplinary society as it meets limited resistance (Foucault, 2012). Within the bounds of the TH, one could consider the repeated exposure and, rather than reprimand, the dependence upon technology as tantamount to a 'discipline' imposed upon the subjects of the TH; conforming their cognitions and behaviours regarding technology to become docile actors within the technocratic society. The acceptance and use of technologies, surveillant or otherwise, becomes internalised, thereby engendering an automatic and unconscious affect when interfacing with them. This can arguably be furthered when considering Foucault's assertions that the incumbent docility negates potentials for serious resistance, with the TH's equivalent being that of the unquestioning of the technological foundations that underly many sectors of society, even after abuses and scandals providing adequate justifications for resistant considerations, such as those of the Snowden Revelations.

Despite this congruence between some of Foucault's concepts and the TH, there is one further point of congruity regarding his works on Panopticism that is a point of mutual criticism of both parties. As determined by Haggerty, a prominent issue with Foucault's ideas and works regarding the panopticon, disciplinary society and docile bodies is that

his work is entirely theoretical; Foucault provides no primary empirical evidence to support his claims (Haggerty, 2006). This, regrettably, is an equal suffering of the argument of this dissertation to some extent, as whilst the majority of the points are evidenced utilising secondary research sources, the validity of the theory presented here requires further study. This shall be investigated further in a later subsection. As briefly mentioned prior, a further issue raised by many, including Wood and Haggerty, against Foucault's work is that it is only retroactively applied to surveillance technologies, as such technologies did not exist at the time that he wrote his relevant works (Wood, 2016). This also disgruntles the legitimacy of attributing any of Foucault's concepts to the TH as, within the context that such ideas are being applied, they rely upon the presumptions of their applicability to technological means and effects, which Haggerty correctly outlines as outside of the original remit of their intention. Thus, any applications to technological surveillance (and therefore technology on a wider scale) is mere interpretation. However, one could also retort such a notion by considering the worth of Foucault's claims when utilised in an interpretive manner against the arguably reductionist notion of dismissing such ideas simply due to their original intention. Considering that Foucault himself later built upon these ideas within a more technologically-informed context (his ideas of 'governmentality' and 'bio-power', for example), points to this criticism possibly being less damning than one might initially consider (Binkley & Capetillo-Ponce, 2009).

4.2   Concerning Haggerty & Ericson

Haggerty, beyond his criticisms of Foucault, collaborated with Ericson to formulate the concept of the 'Surveillant Assemblage' (2000). The concept of the Assemblage was founded as a response to what both authors identified as shortcomings of Foucault's Panopticism, stating that Foucault's model of surveillance focused too stringently upon the power and autonomy of the State as the agent of surveillance (Haggerty & Ericson, 2000). Instead, Haggerty & Ericson argue for a more non-linear model of surveillance, describing the Assemblage as a loosely connected mosaic of disparate systems or "flows" of surveillance across society, each remaining wholly independent in operation of the State (2000). As a result of this model, the subjects of this disparate web of surveillance are "broken down" into their "data doubles"; digital compositions of their collectively produced data (Haggerty & Ericson, 2000: 611).

Theoretically, one could argue that, unlike to the extent of the Panopticon, the TH conceivably 'fits' into the Assemblage as a preceding component, whereby the assemblage's unfocused dispersal of surveillance technology across society could have come to fruition via the hegemonic mechanisms that have engendered the automatic uptake and use of technology as a whole. Furthermore, there is tenably significant support for the TH within the concept of 'data doubles', as it is reasonable to assert that, simply by the mere potential that one *can* be reduced into such a digital equivalent of their daily activities and behaviours, based only on their technological interactions, is tantamount to providing evidence for the TH outright. We must consider it significant to this theory that our intertwinement with technology, through our constant hegemonic acceptance and use of it in our daily lives, has become so profound that there can exist delineable digital equivalents of our day-to-day activities through analysis and mapping of our mere technological interfaces throughout a given day; equivalents that are comparable to 'doubles' as the extent of the information that is generated by each individual is so comprehensive.

This could also affirm the assertion that to reject technology is to thereby deviate from the norms of the social totality, as could it not be argued that, if the majority of individuals under the Assemblage can be reduced to 'data doubles' due to their unconscious technological interfaces, that those that have rejected many technologies would therefore possess notably diminished or even non-existent 'data doubles', when compared to their contemporaries. And, therefore, does this not arguably distinguish them somewhat as deviating from these norms to such a point that their 'doubles' are identifiably different from those of the majority? These points culminate in the potential for a conjunction between the theories of the Surveillant Assemblage and the TH, with the former capable of existing as a result of the latter.

4.3   Examining the SCOT Approach

The final piece of academic literature that will be explored shall be the Social Construction of Technology (SCOT) approach, an approach that was primarily defined by Pinch and Bijker, with its roots grounded in social determinism (1984). SCOT presents the

argument that human action determines, or constructs, the forms, functions and uses of technology within society, delineating that technological determinism is something that ignores the specific uses of technologies within social contexts (Pinch, 2009). This 'technological constructivism' approach is one that more directly contrasts with the connotatively deterministic nature of the TH, as SCOT assumes that technology use is almost always conscious and considered by users, hence why "very similar technologies... (are) used in very different ways" across different social contexts (Graham & Marvin, 1996: 107). Pinch and Bijker boldly state that "social groups direct nearly every aspect of technology" (1984: 17), asserting that the uses of technologies are determined at multiple levels, starting with the designers, industrialists, engineers and their intended uses for a technology, and yet, beyond this horizon, once users appropriate the technology themselves there is arguably limitless possibility in the various uses that each user can find for it. This thereby transcends any initially intended uses and generates potentially new outcomes that could not have been preordained (Engelbert & Graeml, 2013). More succinctly, the uses or 'working' of a technology "is taken not as a physical given but as a social arrangement" (Dusek, 2006).

This proves problematic when considering the principles of the SCOT and the TH in conjunction, whether looking at surveillance technology specifically or technology as a whole. The counterargument of the TH assumes that, within contemporary society, our use and adoption of technologies almost entirely supersedes the vast majority of social factors, with the SCOT approach arguably aligning with many of the assumptions of the TAM (Engelbert & Graeml, 2013). Thus, the acceptance and use of technologies is hegemonically predetermined for the vast majority of society, and its further developments will be similarly determined, building upon the dependence, faith and already accepted uses of technology. This is not to say, as many theories subscribing to technological determinism do, that the hegemonic effect of technology is an absolute – there exist exceptions to the rule regarding technology acceptance and use, namely those whom outright reject technology use altogether, as well as those whom tentatively consider their technology use. Such behaviours are not, however, considered by the TH to be majoritively consistent, instead potentially in decline. Older generations that experienced the pre-technocratic society are more likely to question emerging

technologies, and these generations are gradually decreasing, as are their inherently sceptical sentiments. Meanwhile, the younger generations emerging have only ever known the technocratic society and have been lifelong subjects to the TH, thus arguably possessing fewer tendencies to question or socially construct their technology use, although such propositions admittedly require further investigation.

To further discuss the place of the TH within the spheres of social and technological determinism, and within the context of the SCOT, one could consider this dissertation's theory as existing in somewhat of a vacuum between the two perspectives. The TH both does and does not invalidate the positions of the SCOT approach, as from one angle one could argue that the two are mutually exclusive: a socially deterministic or constructivist approach cannot coexist with a somewhat technologically deterministic concept. However, from another angle, one could argue that, if one is able to consider the two concepts at a further level of abstraction, there is potential for the two to not only coexist, but for an integration to take place. This integration would entail the consideration that the lack of sovereignty over the functioning of societies and any true dependence and faith in technologies throughout history had indeed meant that the technologies of times pre-technocracy were socially determined. However, as the socio-techno nexus became further intertwined throughout the 20th century, the technocratic elements of dependence and faith were amplified, leading to the culmination of the modern technocracy. From here, technology was less socially determined and more technologically determined, as societies now depended and relied upon a vast array of technologies to function on the basest of levels, and thus advanced irrespective of social desires and attitudes, and more towards the further proposition and maintenance of society as a whole, "man participates less and less actively in technical creation, which, by the automatic combination of prior elements, becomes a kind of fate. Man is reduced to the level of a catalyst" (Ellul, 2009: 69).

This can be identified clearly within, for example, both the continued and merely 'mitigated' uses of technologies that act to the detriment of the environment, as previously mentioned, and the wealth of surveillance technologies that, despite the many scandals and proven violations of rights to privacy, continue to permeate societal infrastructure. Both of these examples are not only detrimental to the social totality in

various ways (thus could arguably nullify suggestions of their socially constructed nature in themselves), but they have also burgeoned as fundamental elements of society's functioning – one cannot simply or conveniently subvert or reject them, thereby illustrating their lack of social determinism.

These sentiments could be summated with a question: if societal trends and preferences cannot shift away from the propagations of certain technologies, only compartmentalise and account for them, then in what way can they be considered socially determined? We must instead consider that the base *uses* may not be socially determined, but that the *manifestations* of their uses across society are or could be considered socially determined. Thus, through the TH, the force of technology continues to permeate irrespective and involuntarily of social demands in the modern day.

With this, the presence of aspects of the SCOT are still given room to exist alongside the TH, albeit with a diminished facet in the actual base use of technology on a societal level. In fact, within the context of surveillance technology, this remaining presence of SCOT within the grander theory of the TH can be perfectly illustrated. When considering such events as the Snowden Revelations, we can see that surveillance technology has been socially challenged and questioned in *how* it is used, rather than seriously challenged in its *actual* use in the first place, as policies and laws were passed and mandated in order to negate such misuses of surveillance technologies, rather than consider, for example, outright abandoning them or totally restructuring their places within society. Therefore, the SCOT approach, existing 'under' the TH, could conceivably represent the social construction of the manifestations of a particular technology's use after-the-fact, as the TH determines it's involuntary, automatic, and foundational acceptance and adoption prior to such manifestations.

4.4   Considering Further Investigation

As one can likely identify: the theory of the TH is staunchly within its theoretical infancy. This is partly because the theory itself is original in its own right, identifying a wide gap in the academic literature, but also because the concept is one that could not necessarily have been identified nor codified without the prerequisite technological developments that have heralded the TH's emergence in the first place. Thus, there is much work to be

done in both evidencing the TH and expanding our understanding of it; widening our comprehension of both the elements of society that have culminated in its emergence, and the resultant effects that the TH has.

We must consider that there is much sociological and psychological research that could benefit the legitimacy of this theory. Sociologically, primary research into the significance of cultural factors and differences is of significant interest with regards to the TH, as this dissertation has presented the context with a significant 'Western' leaning, with only technological presumptions made when regarding other parts of the world. A lack of consideration towards cultural differences is something that Lyon found some of his work repeatedly criticised for, as such differences can totally re-orient the forms by which surveillance and its practices can be performed; the same can be said of the interface and place of technology as a whole (Wood, 2009). Of course, it would be assumed that this line of inquiry should aim to identify and study the reality of the TH within other regions and nations that have become, at least to some extent, technocratic. For example, would a collectivist culture, such as those of China or Japan, interface with technology differently? Are the technocratic elements consistent with those of more individualistic cultures? Does the hegemony impact them to a greater or lesser extent, or at all? There even remains the unexplored possibility for alternative strains and/or facets of the TH to be found in countries which do not necessarily meet the technocratic prerequisites outlined here, as perhaps technology's status as a hegemonic force is one which has potentially permeated beyond the constraints of 'first world' countries, owing to the significance of modern interconnectivity and global technological affluence; although such a supposition is mere 'brainstorming' prior to any serious research. Furthermore, in conjunction with the arguments of Rama Murthy & Mani, there is further call to investigation into the rejection of technologies, so as to ascertain a more formally codified model of the processes and dynamics involved in such a phenomenon, and then integrate this with models of technology acceptance such as the aforementioned TAM (2013). This extension of research would be of benefit to the TH in that it could prove fruitful in further developing an understanding of the techno-social nexus, and help to outline more formal criteria for how and why the TH has emerged.

When considering psychological research, it could easily be argued that psychology holds the greatest potential to realise the TH through the generation of pertinent empirical evidence – something that, as noted previously, is lacking somewhat due to the nature of this dissertation. Primary research within psychology could legitimately explore the claims made by the theory regarding the undermining of the TAM and our interfacing with technology; testing and verifying the validity of the theoretical unconsciousness with which we accept, adopt and utilise technology within the modern day. It could further identify the effects of attitudes toward technical interface and other factors, such as age, gender, background, etc, and their relevance within the wider conception of the TH in both present modern society and the potentials for future behavioural developments within the remit of the TH, such as the prospects of emerging generations and their lifelong interactions with the technocratic world.

Furthermore, there is also space for the theoretical expansion of the theory of the TH, independent of empirical research. This could be undertaken in the forms of context-specific inquiry, such as studying the theory of the TH further by considering it within the context of other surveillance-adjacent theories stemming from Foucault, such as Gandy's 'Superpanopticon', which incorporates the social totality beyond the confines of the typical panoptic setting (Gandy, 2021). Or, studies that look more broadly at larger approaches and perspectives from across sociology, psychology or philosophy could provide both fruitful developments of the TH's theoretical acumen, and points of considerable critique or problems of logic that could provide and encourage further avenues for examination. For example, one could look at the dominant hegemonic status of technology and it's greater impact of limiting our perspectives and approaches to the world as something of a form of confinement, one wherein we are confined within the possibilities and potentials that are capable only within the remit of the TH. Thus, one could consider examining the dynamics of our culture and society within the context of their confinement or incarceration by technology's hegemonic power and influence, using many of the theoretical materials presented and explored within the specialist field of Incarceration Studies to study these dynamics through a more carceral lens. Or, for another example, when researching the concept of hegemony, one may come across the concept of 'counter-hegemony', that being a resistance to hegemonic forces through

various means, typically ideological (Im, 1991). It is here wherein a wholly separate line of inquiry can be ascertained: that of how to resist the TH or determine and negate its deterministic impact. The previously identified areas of research could promptly provide avenues for this research, but such a separate investigative objective is likely to be further 'down the road' until a greater understanding of the grander theory itself is attained.

Conclusion

This dissertation has aimed to provide adequate argument for the shift in the position of technology within present society. As modern societies become more and more intertwined and interconnected with the ever-growing number of technologies that have become increasingly present, permanent, pervasive and integral to our societies, we must begin to introspect on our uses of such magnitudes of technology as we become increasingly incapable of existing without them.

The Technological Hegemony is a concept that defies many of the typical conventions established across academia pertaining to our acceptance and interface with technology, as well as its place within society as a whole. Whilst the theory may only be in its burgeoning stages, and may contain some 'rough edges', this dissertation should serve as a baseline from which a call for further research and consideration can be made, expressing the significance of this hegemonic presence by 'bringing it into the light'. We must consider that, by its very nature as a hegemony, the TH eludes assertions of identification, analysis and critique - obfuscating itself through its commonsensical and conventionally accepted narrative.

By identifying, codifying, and potentially giving evidence to the existence of this hegemonic influence across our modern technocratic society, there exists the possibility to explore ways by which we can challenge its effects, 'break the chains', and exist in a society that may still venerate technology, but by choice rather than by automatic passivity. Despite the later focus upon the context of surveillance and the technologies therein, it must be remembered that, in closing, the hegemonic effects of this theory can be felt across all of modern society, and is likely to be felt long into the future as technology continues to develop and propagate itself through its hegemony.

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Appendix 1

A diagram showing the Technology Acceptance Model (TAM) 3 (Boughzala, 2014).