Human agency and the technoscientific dilemma: Contesting the role of technology in shaping our collective futures

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ARTICLE INFO

ABSTRACT

The launch of ChatGPT created a tidal wave of interest, rapid uptake of the app and a surge of capital investment. It quickly became clear that what was now being called 'generative AI' would have multiple impacts and implications across the board. The paper begins by outlining aspects of the context from which these innovations arose. They include Neoliberalism and the 'playbook' of careless, 'non-legal' innovation that occurred during the early rise of social media platforms. The paper also critiques Silicon Valley, both for its one-sided culture and its obsession with marketing. It specifically draws attention to the characteristics and limitations of 'technoscientific' outlooks and the way they conceal, or edit out, key aspects of human existence. A summary of the attributes of technoscience suggests a number of possible responses. Behind these, however, is a widely ignored dilemma - the proposition that a continuation of further stages of high-tech innovation benefits the human enterprise. Yet many high-tech developments are unambiguously sociopathic. They project extreme danger and dysfunction out onto innocent people and unprepared social environments. The paper summarises recent attempts to come to terms with a radically transformed, technology saturated environment and concludes with suggestions for enhancing human agency.

A notion of freedom that fails to put agency front and centre is now politically inadequate given the power and penetration of new and emerging technologies. (We need to) recognise that technologies are inherently political and therefore need to push back against authoritarian technics.

Richard King. *Here be Monsters*, 2023a, 197.

My greatest fear about AI … is that it is social media 2.0. Meaning it accelerates our echo-chamber partisanship and further segregates us from one another. AI life coaches, friends and girlfriends are all in the works. …The humanisation of technology walks hand in hand with the dehumanisation of humanity. Less talking, less touching, less mating. Then affix to our faces a one-pound hunk of glass, steel and semiconductor chips and you've crossed the chasm to a devolution in the species.

Scott Galloway. Techno-Narcissism. *No Mercy / No Malice*, June 16, 2023.

It is the artistic gifts of man that are first to meet all worlds, and it is through the community of moods that these new worlds first reach other minds.

J.T. Fraser, *Time as Conflict*, Birkhauser, 1978.

1. Introduction

This paper is the fifth and final contribution to a series by the present author on the general theme of 're-assessing the IT revolution.' The series began with an enquiry into what appeared to be a growing polarity between corporate and commercial interests on one hand and wider human interests on the other. It then examined two specific case studies, the 'Internet of Things' and 'autonomous vehicles' and also took a closer look at Facebook and Google. These sources supported the view that the overall pattern of innovation in this rapidly expanding area was, in many cases, compulsive, ill-judged and non-legal. The notion of 'constitutive human interests' (e.g. in peace, well-being and an open future) was employed to suggest strategies that sought to 'tame' technical excesses and promote a process of 're-humanising' this particular revolution.

The series also drew on four people, or 'witnesses' who each, in their own way, had developed an in-depth understanding of just how this particular revolution was proceeding. A key text here was Shoshana Zuboff's magisterial account of the establishment of the Internet oligarchs in conditions of extreme secrecy, far from public view, (Zuboff, 2019). Her term 'surveillance capitalism' has been accepted almost universally and helped to inspire further work in this domain. It is suggested that Zuboff's account effectively 'de-coded the matrix' by revealing just what had happened, why and according to whose interests. The series concluded with a discussion of specific strategies based on more positive values and more embracing worldviews.

2. Context and purpose

When ChatGPT was launched in late 2022 it was bound to cause trouble. Large Language Models (LLMs) had been under development for some years, but little thought had been given to the future impacts and implications of what then appeared to be an esoteric subject. Before long, however, the app was being downloaded almost everywhere and producing useable text on just about any subject. What became referred to as 'Generative AI' had arrived, and nothing would be the same. Nor was this outbreak of high-tech virtuosity confined to human language; it could also write computer code and manufacture an infinite range of imagery. Routine, everyday work in many fields and professions suddenly appeared vulnerable, as writers, artists, lawyers, journalists and others were confronted the rapidly changing outlook for future employment, income and identity. Longer term, the risks were quite possibly existential, raising further questions about prospects for humanity.

Given the potential scale and impact, it's notable that most responses focused on immediate impacts and uses to which Chat et al. could be applied. Large numbers of people, and many organisations set aside the larger questions and opted try the app for themselves. To the pragmatically minded such developments were seen as potentially useful while others feared the onset of a digital dystopia. Few paused to question the assumptions embedded in the term 'AI.'[1] In the following months, more concerned and astute observers sought to challenge the legality of Open AI itself, a private company acting solely in its own interests, in launching such a hugely disruptive technology without care, forethought or reference to any external authority (Klein, 2023). More perplexing still was that the US government appeared largely passive by failing to intervene and exercise its own authority, its fundamental duty of care. Which is partly why a group of scientists and others called for a moratorium, along with a raft of related measures, intended to provide a basis for regulation and control (Future of Life Institute, 2023). Some promising options were suggested but did nothing whatever to slow down, let alone halt, further research and the growing tsunami of capital investment.

Other concerns, such as the wholesale appropriation of copyrighted material, the environmental costs of server farms and the growing threat of abuse by 'bad actors' were hardly 'top of mind' for enthusiastic experimenters. Nor was there much specific comment regarding the extraordinarily hubristic sense of entitlement assumed within this high-tech sector. Instead, a near-exclusive focus on *the tech itself* (what it did, what it might do next) diverted attention away from the wider socio-economic context from which these developments had arisen. Given the implications, such 'tunnel vision' seems profoundly unwise. A central purpose of this paper, therefore, is to focus on that broader context and, in so doing, explore options for actions and responses that bring the full power of human agency into play. More specifically, it seeks to question what appears to be a pervasive but poorly understood dilemma. Namely that, in our fractured, divided and hostile world, successive waves of high-tech innovation serve to improve upon and sustain the human condition.

It will likely take years before a full account of these events and processes will be written. In the meantime, the following issues are among those that require sustained attention:

- Neoliberal culture and the IT 'playbook' of careless, 'non-legal' innovation
- Silicon Valley's obsession with marketing
- 'AI' in relation to human culture and intelligence
- Language and meaning
- Core of the dilemma
- An epochal shift

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[1] Considered from the viewpoint of human psychology, the very notion of 'AI' lacks credibility, leading some to regard it as a category error (Gidley, 2017). Hence the term 'machine learning' is more accurate and would represent a better choice.

- Countering technoscientism
- Beyond 'technoprudentialism'

3. Neoliberal culture…

At the outset it's worth remembering that, during the late the 20th Century, governments, businesses and civil societies had started to appreciate the value and power of applied foresight. That is, of actively considering known problems, expected innovations, trends and challenges affecting the near-term future. The benefits flowing from the considered use of strategic foresight were widely taken up and implemented. This work took place in various settings including government departments, consultancies and purpose-built organisations that Robert Jungk referred to as 'institutions of foresight.' Their task was to detect and assess 'signals of change', explore alternative scenarios and suggest options from which meaningful strategies could be derived. For some years, these efforts thrived and gave rise to a nascent international 'foresight community.' Before long, however, political agendas moved toward the right and an influential corporate ideology known as 'Neoliberalism,' took hold. Its agenda was simple but far-reaching: reduce the size of government, free up corporations 'to do what they do best,' reconceive citizens as consumers and go for growth.

This view certainly produced results in many areas. However, from a far-right conservative point of view Institutions of Foresight (IoFs) such as the Office of Technology Assessment (OTA), the Congressional Clearinghouse on the Future (CCF) and Australia's Commission for the Future (CFF) were viewed as unnecessary. Moreover, it was argued that those aspects of their work that might conceivably be seen as helpful (such as forecasting, conventional planning and other market-friendly futures techniques) could just as well continue under the auspices of consulting firms and public / private collaboration. Over time, however, it appeared that such changes tended to favour corporate and business interests above those of almost everyone else.

In theory, the Capitalist market system was expected to have positive results such as providing more choice, greater decision-making power to broader constituencies and, in so doing, create wealth and opportunity for those willing to put in the necessary effort. And, it must be admitted, in societies lacking an effective market system, entrenched elites certainly appear to retard social and economic development. Moreover, apologists such as Johan Norberg argue that the spread of private property in which people invest their interests should be more effective at protecting the global commons than what he sees as 'ineffectual' or failed attempts at Socialism in which no-one is held responsible. Thus, it's worth admitting that, at certain times and in certain places, Capitalism certainly 'delivered the goods.' Equally, however, the nature of its longer term 'success' is debateable. The notion that markets work better with limited government oversight clashes with the view that for markets to work 'properly' (i.e. in everyone's best interests) someone has to ensure that 'the rules', social equity, broader social and environmental issues are all adequately addressed.

Crucially, in regard to the IT revolution, the human, social and environmental implications have tended to be set aside and rendered all-but invisible by a system more directly attuned to growth, private wealth and shareholder value. As critics like to point out 'Capital' appears to have a single purpose: it 'just wants to create more capital.' Hence, in the absence of strong and effective government oversight, it has greatly expanded the group now referred to as the 'super-rich' along with inscribing reductionism, exclusion and inequality in society and increasing entropy in the global system (Meadows et al., 1972; Carrington, 2023).

The unintended consequences are serious and persistent. For example, the act of placing 'innovation' and 'entrepreneurship' above or beyond government oversight meant that innovators and entrepreneurs no longer saw a need to seek government or social sanction for their actions. Injunctions such as 'company before country' and 'move fast and break things' sum up this dangerous and uncompromising dynamic which the US government seemed unable or unwilling to challenge. Market manipulation and related predatory acts became endemic. Corporate malfeasance became common as companies knowingly marketed dangerous and destructive products to an increasingly confused and divided society. Public interest initiatives were undermined and at times rendered ineffectual (Bakan, 2004).

It is sufficient to mention one particularly egregious example. It concerns EXXON, one of America's largest and most profitable oil conglomerates, later the subject of a 'made for TV' film called *Black Gold* (Time Studios Film, 2022). At the time, the company had a highly accomplished research division that produced some of the earliest climate models. These unambiguously revealed the scale of disruption that would occur from the continued burning of fossil fuels and rising levels of CO_2. The instincts and values of the CEO, however, did not extend beyond company limits and the decision was made to close the entire research division. From a raw capitalist perspective, it made more sense to close off 'inconvenient' information in order to protect company profits. That this was by no means an isolated case is confirmed by sources such as Nathanial Rich's book *Losing Earth* where he calls out the sociopathic implications of climate change denial (Rich, 2019).

For reasons that still remain unclear, the US government repeatedly failed to require corporations to take responsibility for their actions and lack of care. Members of the Conservative 'super rich' club are also well known for financing serial campaigns designed to cast doubt on critical issues such as smoking, environmental protection and climate change. They actively supported organisations specifically designed to 'muddy the waters' and impede progress (Oreskes & Conway, 2010). In summary, the Neoliberal ascendancy permeated governance, the economy and the wider culture. *The tech continued to evolve and become more powerful, but the core values remained those of raw capitalism.* Virtually no one was interested in understanding the ramifications of high-tech innovation, merely profiting from it as fully as possible. Given the context, it's not surprising that the character and priorities of what were later dubbed 'social media' were flawed from the outset and, in turn, led directly to the increasingly fraught online environment that surrounds us today.

4. ...and the IT 'social media' playbook

While no-one should be in any doubt about the ideals and high aspirations of America as a nation, the fact is that certain ills that now beset the world arose and were nurtured there (Slaughter, 2008). For example, after World War II the national effort to transition GIs into civilian life included a strong emphasis on marketing the associated 'necessities.' While this made sense at the time, what made less sense, was the inability of the commercial sector to pull back and wean itself away from marketing increasingly questionable versions of material progress along with the familiar 'growth at all costs' outlook (Packard, 1967). President Carter was one among many who attempted to warn the nation about what he saw as the deteriorating national outlook. But the Reagan Administration provided a different, less demanding vision.

To further understand the 'playbook' employed by the IT industry, there's perhaps no better source than Zuboff's authoritative account of how, some twenty years ago, Google began a process that turned an innocent-seeming search app into a vast and unaccountable program of global surveillance (Zuboff, 2019). A key point here is that the tech was not developed openly or subjected to any external assessment or wider evaluation. Following earlier investment by the US government, Google's subsequent research was undertaken and patented in conditions of strict secrecy. Searching remained 'free,' whereas personal data was monetised without the individual's knowledge or approval. Over time, the company dispensed entirely with private / public domain distinctions. In the absence of effective high-level oversight, it proceeded to appropriate the work of countless authors, artists and other creative people. Efforts were subsequently made by, and on behalf of injured parties, to rein in or halt the practice of cynical and repeated worldwide theft but currently remain unresolved.

'Digitising the world's books' may have sounded innocent enough, but seeking to appropriate the life work of countless creative people looks perilously close to commercialised criminality. Similarly, Google's Street View maps simply ignored established norms of privacy. Before long Street View was in wide use and it was too late for privacy lawsuits to question how this was allowed to happen. Naomi Klein comments on the continuing impacts of these practices.

> Now the same thing that happened to the exterior of our homes is happening to our words, our images, our songs, our entire digital lives. All are currently being seized and used to train the machines to simulate thinking and creativity. These companies must know they are engaged in theft... They are just hoping that the old playbook works one more time... That courts and policymakers will once again throw up their hands in the face of the supposed inevitability of it all (Klein, 2023).

Facebook's origins and subsequent trajectory were similar. It progressively scaled up from a student messaging app to a world-wide surveillance web that seduced millions of people to use its so-called 'free' services in return for the progressive invasion of their privacy. Subsequent appearances by Zuckerberg before Congressional Committees revealed how lacking he was of any hint of empathy or moral authority but also how poorly the politicians grasped the issues at stake. This is another reason why regulation in the US has been so slow and it helps to explain why the content, tone and substance of the Internet has become more problematic over time. As far back as 2011 some observers were already suggesting that rather than be viewed as a benign mega-utility of universal value, it had become a vast and chaotic source of instability, danger and systemic criminality (Glenny, 2011).

It appears that a corporate sector driven by limited values thrived while American society became increasingly impoverished and polarised. (A view neatly summarised as 'private wealth / public squalor.') So-called 'social media' only made things worse by providing 'bad actors' – both at home and abroad - with an ever-expanding range of new tools and opportunities to spread their influence in ways that were increasingly difficult to restrain or counter. Elections have been compromised and reputations trashed. Nihilism and conflict spreads and social interactions can, at times, descend into a kind of 'war of all against all.' This is the context in which private companies such as OpenAI continue to pursue their self-appointed search for wealth and power without reference to the broader community. By the time it, and other high-tech outfits, chose to develop LLMs, what had once been considered unwise, irresponsible or perhaps even 'criminal behaviour' was well on the way to being normalised as standard R&D practice. A diminished sense of reality sanctioned the search for abstract language rules, the routine dismissal of accepted copyright conventions and the repeated abuse of author's rights. Lacking a sense of humanity or history, the internet could be 'mined' as if language was little more than linguistic rubble.

5. Silicon Valley's obsession with marketing

The fact that Silicon Valley (SV) has long been seen as one of the most valuable sectors of the US economy in terms of global prominence and profitability is another indication of the definitional power of 'technoscientific capitalism.' Its rise was never inevitable and would have certainly faced strong opposition in cultural contexts less beholden to the dictates of technological power and expertise. It is vital to remember, however, that the US is a diverse country with many admirable features including its Constitution, its openness to innovation and its aspiration to be a 'light on the hill during troubled times. Equally, however, there are multiple examples of self-deception that create difficulties. One of these is a long-standing tendency to over-identify rapid technological development with 'the future.' This, coupled with the instrumental power of its vast global marketing industry, lent SV the appearance of seeming natural and inevitable, its processes and products widely portrayed as positive and liberating.

In this context it is hardly surprising that human agency can, at times, appear overwhelmed by raw technical power. Weak governance, along with strong links to the security and military sectors contribute to the illusion of progress through technical innovation. A superficial idealism, and what in some cases amounts to a breath-taking naivety, serve to mask the underlying self-interest of the IT industry and its investors. Kathy Cook's book, *The Psychology of Silicon Valley* is one source among many that reveals some of these unacknowledged tendencies, bringing welcome clarity to the unacknowledged 'shadow side' of America and its IT

empire (Cook, 2020). [2]

While SV continues on its own self-appointed rush to the future Moshin Hamid identified a key proposition that so many seem to have missed. Namely, that the US has for many years operated out of what he calls *'a sense of techno-optimism ungrounded in any profound understanding of technology'* (Hamid, 2022). The point is reinforced by other observers including Richard King, who defines the dominant instrumental view of technology as a one 'very much favoured in Silicon Valley, (that) amounts to a reflexive belief in progress, even a kind of fatalism that strikes me as borderline nihilistic.' He adds that 'it also tends to assume implicitly that the human brain is itself a "technology" that can be retooled for greater efficiency (King, 2023b).

Under less contentious circumstances such propositions would likely be regarded as choices from within a wider range of options and, as such, open to discussion, negotiation and re-assessment. Yet to those caught up in the technoscientific worldview such notions are by no means 'front of mind.' Rather, they tend to be axiomatic, embedded assumptions operating invisibly at levels below those of critical awareness. Which helps to explain why successive waves of technical innovation have been, and remain, so closely aligned with ambiguous purposes such as maximising corporate profit and 'national security.' Google's formidable capacity to provide high-end surveillance after the 9/11 disaster proved irresistible to the US security establishment. At which point the government and its regulatory capacities were arguably compromised. In return for vast swathes of 'intel' it lost the ability to bring the emerging internet oligarchs to heel or have any real influence on their subsequent quest for world domination.

The American obsession with marketing is by now perhaps a century old. It remains a barely acknowledged and poorly regulated national obsession with unfortunate consequences (Galloway, 2023). Yet behind the ever-growing array of 'cool' devices and shiny toys lie various assumptions that have yet to receive the sufficient critical attention. Assumptions about power, growth, human agency, the role of technology in society, the role of government in providing quality insight, oversight and foresight all have consequences. Among them at the present time is that private are able to continue operating without reference to other values and concerns. It's not so much a deliberate plot to deceive as *a shared systemic blindness* that brings with it distinctly inadequate conceptions of human life and cultural possibility. [3]

6. AI and human intelligence

The term 'artificial intelligence' was coined by MIT researchers in the late 1950 s and has therefore been in use for many years. However, the category error embedded within it has been widely overlooked, allowing the term to become uncritically adopted. Which is unfortunate since, at a time when clarity becomes ever vital, it perpetuates a confusion. Intelligence is a multi-dimensioned human capability with no machine equivalent. On the other hand, machine learning (ML) refers to more limited procedures that operate within pre-defined structures of formal reasoning and calculation. There's no doubt that it has proved useful, especially when it streamlines and improves upon human effort. These uses and applications are certain to proliferate and become common practice. One cannot argue, for instance, with the increased efficiency by which ML can diagnose bio-medical conditions or delineate the intricacies of proteins. There is, however, nothing remotely 'intelligent' about scanning and pattern recognition. Nor should anyone feel particularly threatened about the fact that machines can operate in these limited ways faster and better than people. Seen thus, the tech is merely a tool with a wide range of practical uses. Hence, it is clear that while these devices will get faster and more powerful, they will never be conscious.

Evgeny Morozov has been observing the IT revolution longer than most. He strongly supports the view that pattern-matching, pattern recognition and the like, are one-dimensional operations. Human intelligence, on the other hand, is anything but. Rather, he draws on work by Chilean psychoanalyst Ignacio Blanco, who suggests that human intelligence fundamentally involves what he calls 'bi-logic.' This is defined as 'a fusion of the static and timeless logic of formal reasoning and the contextual and highly dynamic logic of emotion.' He adds that:

> AI will never get there because machines cannot have a sense (rather than mere knowledge) of the past, the present and the future; of history, injury or nostalgia. Without that, there's no emotion, depriving bi-logic of one of its components. Thus, machines remain trapped in the singular formal logic. (Morozov, 2023).

He adds that 'the danger of continuing to use the term 'artificial intelligence' is that it risks convincing us that the world runs on a singular logic: that of highly cognitive, cold-blooded rationalism.' It's here that we again meet an underlying theme of this account: the extreme narrowness of technological products and the worldview and culture from which they emerge.

A related feature of LLMs that needs to be grasped is that they are not, in fact, 'generative' in the true meaning of the term, but derivative. James Bridle puts it this way. He suggests that 'all image and text generation is primitive accumulation: expropriation of labour from the many for the enrichment and advancement of a few Silicon Valley technology companies and their billionaire owners.' He continues:

> These companies made their money by inserting themselves into every aspect of everyday life, including the most personal and creative areas of our lives: our secret passions, our private conversations, our likenesses and our dreams. They enclosed our imaginations in much the same manner as landlords and robber barons enclosed once-common lands. They promised that in

doing so they would open up new realms of human experience, give us access to all human knowledge, and create new kinds of human connection. Instead, they are selling us back our dreams repackaged as the products of machines, with the only promise being that they'll make even more money advertising on the back of them (Bridle, 2023).

One of the most extraordinary features of the LLM story is the truly vast amounts of time, money and energy (both human and fossil) devoted to creating and releasing them (Naughton, 2024a). In stark contrast, the resources devoted to understanding and assessing their possible impacts and longer-term implications have been minimal. The imperatives of technocapitalism have been taken as unquestioned and self-evident. They're seen as more dynamic, more determining, more directly useful than any broader concerns we may have about human and global well-being. The over-arching purpose, however, remains the same: instrumental power and monetary gain.

7. Language and meaning

It is unclear if anyone involved in the development of LLMs in recent times ever stopped to reflect on the nature of human language. The latter obviously has a rich history as well as a wide range of attributes that both enrich and challenge human understanding. To see it simply as 'raw material' for sampling and calculation suggests a deep-seated, unconscious confusion. As already noted, in commercial environments questions of meaning and purpose are routinely overlooked. The century of intensive marketing and relentless advertising briefly mentioned above takes on added significance in this context as it has deliberately obscured the gulf between human needs and wants, leaving millions of people in deep confusion about the grounds of their own identity. The sterile world that emerges is evident everywhere, and particularly in the ethos of every shopping mall and very many aspects of digital media. Underlying this is the unconscious narcissism inherent in any attempt to instrumentalise an ancient a multi-faceted, multi-dimensional cultural phenomenon that frames and conditions human civilisation.

Languages, plural, are expressed in many forms including: everyday speech, reading, writing, libraries, literature and so on. They evolved precisely because human beings are *creators of meaning*, authors of purpose and significance. It's due to language that the gulf that would otherwise exist between individuals can be dissolved allowing us to form unique identities. The recursive nature of language also means that we are able to not only be reflective, but reflexive – to know ourselves in the process of knowing. It's this that makes humour, laughter and fun possible. These processes of 'meta-cognition' sustain our inner world(s) from which discourse and culture emerge. As such, language provides an open-ended and infinitely subtle medium that allowed civilisations to emerge and prosper over millennia. Initially through stories, symbols and later through letters and books, language bestowed unlimited worlds of knowledge and experience upon otherwise merely clever bipeds. It nourished their inner worlds and endowed them with the capacity to be human. A poor grasp of language diminishes us, whereas a broad and deep immersion allows new powers and capabilities to emerge from earlier times (Vallejo, 2022).[4] In summary, *human life, human flourishing, requires an authentic inner self situated within a cultural context in which values can be expressed, judgments formed, and consequential decisions made.*

It is instructive to contrast this with the way that LLMs have been constructed by 'scraping' the Internet (with its heavily skewed subset of human expressions) in order to create algorithmically determined relationships between words and groups of words. It's hardly surprising that authors and other creators become disturbed when their works are treated as mere raw material. What emerged is a lifeless and decontextualised account of the mere 'scaffolding' of words that, as we've seen, lacks meaning or significance. That such qualities are then *projected onto* assemblages of words that provide some echo of derived meaning, is not a particularly new insight. Joseph Weizenbaum, an early critic of IT and the inventor of Lisa, an early language model, drew attention to this process in his book *Computer Power and Human Reason* (Weizenbaum, 1976).[5] It's not unlike the human habit of seeing animals in clouds or rock formations and, as such, is testament to the power of human imagination. Much has been made about the purported 'usefulness' of such manipulations that purport to save human time and effort. And, indeed, there are countless situations in which a culture that has, we might say, 'come adrift' or 'lost its bearings' will find ready applications for these language remnants in the name of 'progress' or 'efficiency.' As if the most compelling features of language do not depend on its vast and compelling *in*efficiency, ambiguity and depth! Overall, this is a certain recipe for confusion and the undermining of human agency.

There's always been a market and a place for calculation and always will be. Yet, attempting to confine reflection and thought merely to such instrumental domains is an exercise in futility suggesting that other vital aspects of human life, other values and purposes, have fallen out of use, dropped out of sight. Which may help to explain why James Brindle suggests that ChatGPT 'is very good at producing what sounds like sense, and best of all at producing cliche and banality, which has composed the majority of its diet, but *it remains incapable of relating meaningfully to the world as it actually is'* (Bridle, 2023).

8. Core of the dilemma

It may seem strange to recall but, during the early years the IT, or digital, revolution, was widely promoted in the belief that it

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[4] This key point is amply demonstrated in Vallejo, I. (2022), *Papyrus. The Invention of books in the Ancient World*. Her panoramic view of the development of language, writing and books over several millennia provides indispensable evidence for language as a priceless human and cultural resource.

[5] See Tarnoff (2023) Guardian review of Weizenbaum's life and work. https://www.theguardian.com/technology/2023/jul/25/joseph-weizenbaum-inventor-eliza-chatbot-turned-against-artificial-intelligence-ai

would bestow a variety of new gifts and services upon humanity. Despite minority concerns, the dominant view at the time was that 'new tech' opened up new possibilities and, as such, would be *broadly enabling* and solve many of the world's problems (Negroponte, 1995).[6] A sense of optimism and inevitability permeated the wider culture and pervasive global marketing prepared the population for the avalanche of new products and services that were about to emerge. But over time unavoidable defects and costs began to emerge. As noted above, the development of the 'dark web' facilitated the rise of abusive and criminal applications in the form of scams, identity theft and other aggressive acts. The uneasy balance between public well-being and organised crime tipped strongly toward the latter (Glenny, 2009).

Rather than evolve into a helpful tool for everyone, the internet was changing into something darker and more dangerous and thus began to require more than ordinary care. For those with the requisite skills and knowledge it was a treasure house of information. For others, it looked more like 'a swamp' in which people could 'easily drown or lose themselves … in disinformation and conspiracy theories.' Eventually the penny dropped and informed observers realised that 'in order to be capable of making good use of this technology, individuals need to be intelligent, educated and already possessing considerable knowledge and understanding' (Allen, 2013) The unqualified optimism exhibited by Negroponte and other tech boosters had also overlooked the potential for society as a whole to become increasingly and unwisely *dependent* on IT. Previously unaware or complacent users (which includes corporations) were rediscovering, yet again, what they should already have known from historical precedent. That is, technologies always have possessed what might be called 'dual identities.' Far from being esoteric, the metaphor of a double-edged sword is well represented in the collective social memory. Thus, if a simple kitchen knife can prove lethal, what should be assumed about more complex and powerful devices? Used with due care, technology can certainly be helpful; used badly it leads directly into nightmare territory and human suffering.

There's a reminder here of a fact that's been widely overlooked. Namely, that *technology makes it easier for people to be hurt and to hurt others, often at a distance.* Yet, for reasons that should concern us far more than they do, a suite of powerful communication and control technologies have emerged *as if* this ambiguity, or 'essential duality' of tech potential did not exist or simply ran in one direction only. This simplistic view is surprisingly common, but it is contradicted daily. *The fact is that entire populations are now quite literally surrounded in depth by layers of deceit, criminality, exploitation and outright hazard.* In this context, dreams and plans of viable high-tech futures no longer appear self-evident, and lack the credibility they once had (Chulov, 2022).

The core of the dilemma can be summarised in a metaphor. What Zuboff called a 'bet the farm' commitment made back when the Internet was in its infancy has quite simply backfired. Successive waves of high tech threaten to undermine the entire human enterprise, making it increasingly vulnerable to some of the darkest and most dangerous human impulses: anger, greed, fear. To summarise, collective experience over the last 20 years or so suggests the following broad categories: enabling -> dependency -> vulnerability -> threat. This is not the place to reprise the history of resistance to the careless applications of technology, progress traps or the warnings expressed in this topic at least since the time of HG Wells. There does, however, seem to be a long way to go before we have an adequate, *broadly understood and shared* account of where the IT revolution is taking us and why.

A further obvious, relevant, but almost universally overlooked fact, is that, over countless millennia, *human life and history have always been grounded directly in analogue reality*. It is a familiar world in which we can touch, feel, know and be directly involved with, connected to, whatever we are doing. What we might call 'digital reality', on the other hand, is profoundly different. It is, in many respects, an alien 'no-place' that can never be directly known, felt, touched or influenced by humans. In fact, it's only accessible at all by way of complex, expensive and highly sophisticated equipment that, by definition, is owned and controlled not by people as such but by large and powerful organisations. Clearly, although the latter have been gifted human-like status in commercial law they are, and will remain, abstracted entities. Their interests and ours as living and reflective entities are far from being neatly aligned, a point addressed in some depth by Runciman (Runciman, 2023).

9. An epochal shift

Within the known and tangible world of everyday economic relations humans have long experienced the impact of the power of large organisations (such as governments, armies and corporations) to re-define values and priorities in ways that serve their own specific interests. The consequences are there for all to see. But within the digital realm the total dominance of a handful of such organisations seems to have eluded our collective awareness. This apparent blindness has allowed them to represent what is in fact a vast epochal shift merely as a sequence of superficially desirable consumer products and associated services. The step increase in definitional and economic power has therefore provoked surprisingly few responses. Until now.

One of the most useful sources that examine this widely misunderstood transition is Robert Hassan's *Analog*. Here's how he describes some aspects of the deceptions involved.

> We weren't crossing a line so much as digital technologies – computerisation - was colonising our personal and social spaces, armed with promises of a bright future if we adapted to the needs of what was (and still is) a business revolution (Hassan, 175)

He quotes McBride as describing computers as a 'new force in society' with the ability to 'reach out' and influence both machines

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[6] As director of The Media Lab at MIT, Negroponte had what he believed was an authoritative viewpoint. It was most clearly expressed in an epilogue to *Being Digital* called An Age of Optimism where this outlook is explicitly coupled with that of technological inevitability. He wrote that: 'like a force of nature, the digital age cannot be denied or stopped. It has four very powerful qualities that will result in its ultimate triumph: decentralising, globalising, harmonising and empowering.' (Negroponte, 1995, 229.)

and people. This 'force' had initially been inhibited by government regulations but, as noted here, with the rise of Neoliberalism competition and profit became primary. At this point:

> The line was crossed as computerisation and automation daily occupied large swathes of economy, culture and society… (Similarly) our bodies and brains were … 'made to operate with digital information' but in ways and with effects that were barely considered beyond a soon-to-be hegemonic Silicon Valley-inspired boosterism. (Furthermore), for those who did consider the transition to digital, most drew from a Whiggish Liberal culture that viewed modern technological development and modern capitalism as fundamentally positive (Hassan, 174).

It's here that we begin to discern some of the powerful but hidden aspects of the technoscientific worldview that served to drive the IT revolution in ways that undermined democratic process from the beginning. What then begins to emerge from the shadows is not a liberation *but the outlines of a near-invisible digital prison*, the very negation of human hopes and dreams for a better future. This is clearly the territory of Dystopian art, film and literature. But we don't appear to have recognised that the whole point is to understand it sufficiently to navigate away toward more life-affirming options (Slaughter, 2004).

It's therefore deeply concerning that the means though which societies represent, discuss and comprehend their reality have been so thoroughly compromised by the shift to digital. Despite an apparent abundance of means, 21st Century societies are arguably less well equipped to participate in political debates than previously. Hassan's comments are worth reproducing here in full:

> Mainstream media … still tells stories about politics. It still writes narratives in which the social world should make sense to readers and writers… But digital communication functions differently from analogue. Platform-owned algorithms are formed on a specific business model, whose code is a closely guarded secret. These algorithms filter, profile, select and distribute these stories, these facts, in ways that have served to distort the political process we call Liberal-Democratic. (Hence)…*the greatest challenge of the digital age is that facts and knowledge, and the politics that depend on these for their legitimacy, are all wrapped up in a new and negating communication paradigm* (Hassan, 2022. Emphasis added).

In this view, the digital sphere is not one that is shared equally or on the same basis by everyone. Rather, it is a 'constellation of largely private spheres that rarely trespass on each other's domain.' As such it actively *prevents* the kinds of open and evaluative processes that support and enable what was previously considered to be 'normal.' Democracy, as such, becomes more difficult because an increasingly remote and toxic media environment gives way to hidden dimensions of privilege and power. The systematic deception and exploitation carried out daily by the internet oligarchs continue to occur for one key reason: there are few or no countervailing powers to stop them. Regulation by governments can certainly place limits on the damage, but thus far, it has been largely reactive and ineffectual.

Towards the end of his book Hassan outlines the views of Walter Benjamin back in the 1930 s and his suggestion that what he then referred to as 'moderns' had already been impoverished by technological 'progress.' Referring in part to the military uses of technological development, he believed that a process of 'moral degeneration' was already occurring. Furthermore, he felt there was little chance of reversing a process that was 'set against material power that has developed beyond actual human interests.' Close to a century later that view stands as a challenge to 'post-moderns' and their media-absorbed offspring. But it can also be overstated. A more helpful and immediate task may be to find innovative ways of countering economic and instrumental power and refocus on other, equally vital, human and natural interests.

10. Countering technoscientism

This article has suggested that the launch of Chat et al. was undertaken by private companies acting in their own, very specific interests and their 'success' is currently measured not in terms of actual improvements to the human condition but to their 'bottom line' defined in terms of income, growth and a vast inrush of investment. Samantha Floreani is one of a growing number of observers who see and question this. She notes that:

> Tech elites like to cast themselves as radical revolutionaries. But we find ourselves in a relentless cycle of sameness. Tech "disruption" rarely meaningfully replaces much. Rather it rearranges systems so that the disruptor turns a profit, and usually entrenches pre-existing inequalities … Any meaningful, progressive – and dare I say, hopeful – view of the future of technology must be willing to engage with its politics, history and consequences (Floreani, 2023)

Disruption per se is, of course, neither 'good' nor 'bad'. Indeed, it is unavoidable since it's involved in any almost everything humans do as they transition from one way of doing things to another. Yet there's a difference between productive and unproductive disruption. Which is what some observers perceive in the 'relentless cycle' of IT products with minor, incremental changes and additions that few people really need. Then, on a broader scale, it's hardly surprising that these very partial, specifically economic interests, have increasingly come into conflict with our shared, universal human interests in a settled and peaceful world. This is not merely a general point. As implied earlier, corporations and other vested interests actively sought to discredit the 'limits to growth' thesis from the 1970 s onward thereby impeding effective action to moderate the impacts of humankind on the global system such that, by the early 21st Century, Earth's 'vital signs' were 'worse than at any previous time in human history' (Carrington, 2023). Technoscience is by no means the only driver of this sad state of affairs, but it is directly complicit in the process and therefore needs to be understood and countered.

Viewed from a perspective that is critical of how technoscience currently operates, one may be forgiven for suggesting that it is not merely machines per se that threaten our future. A related issue is that people are being conditioned wholesale to frame the world in

machine-like terms. Table 1 summarises some of the attributes of technoscience that help to sustain this collective dilemma. Clearly, there is more detail here than can be explored in a short paper. But it's clearly vital to get a handle on what is happening in order to develop effective strategies of response.

If the defence of human agency is of supreme value in our time and, as such, central to resolving the dilemmas we face, then clarity regarding underlying assumptions about science, technology and human wellbeing is vital. It is, for example, crucial to emphasise that technical developments are inherently political and, as such, are *necessarily* subject to democratic processes of oversight and regulation. Similarly, it's helpful to move beyond the prospect of dystopian techno-futures by adopting *a more comprehensive framework of understanding and action*. Which, in turn, suggests that the technosciences themselves, the techno-capitalist order they have enabled, along with corporate and state entities, cannot be regarded as isolated or autonomous. Rather, they are, and should be seen to be situated *within a broader conception of how human history and civilisation exist within an over-exploited and destabilised global system* (Lewis & Maslin, 2018; Francopan, 2023). This is a critical step, that will also involve relinquishing the view that humans are 'lords and masters' of the natural world.

The fact that innovations emerge from *a long social process* of design, modelling, trial, experiment and so on, all of which are profoundly affected by prevailing values and worldviews, needs to become unambiguous, widely shared, public knowledge. Clearing the fog from our collective vision opens up *a richer picture* that draws our attention to a broad assemblage of factors and influences. Perceiving and understanding such phenomena clearly requires a certain amount of effort, training and skill. Which is why, as with social foresight itself, a newly invigorated regime of in-depth 'foresight enabled technology assessment' is urgently required. This, in turn, will again require purpose-built and internationally networked organisations charged with carrying out the necessary groundwork and outreach (Slaughter, 1999).

The entities that defocus and obscure the consequences do so through the 'hard sell', the active promotion, ignorance and not-knowing. On the other hand, techno-critical perspectives bring clarity to what needs doing and why. For example, highlighting *specific social interests* embedded in advanced technologies helps to establish a strong case for subjecting them to more timely, searching and effective democratic control. In the absence of such measures, private interests will merely continue launching increasingly powerful versions as if they were unproblematic and cost-free.[7] It's worth recalling here that the vast extent of surveillance and related instrumental power in China provides the most immediate contemporary example of technological over-reach. As such, it constitutes an urgent warning since, in the absence of effective action, Dystopian tendencies may be universalised across the entire world (Devlin et al., 2023).

Internet oligarchs from Google and Facebook and, more recently, OpenAI, each demonstrate that private interests operate in ways that negate and undermine wider, shared human and cultural interests. Hence, it's unfortunate that the US still clings to an earlier set of assumptions that allow private interests greater degrees of autonomy and freedom than is prudent.[8] The current model of careless, irresponsible innovation in one area after another, has sustained a fiction that, on balance, such innovations operate in favour of humanity's long-term interests. Yet, as noted, this dilemma is costing us more than it's worth for one simple reason. Each step in the increase of technological power and capability fuels both sides of the essential 'duality' mentioned above. For every innovation that can help and assist other, darker versions that hurt, exploit and destroy, are constantly being fashioned. For example, the persecution of young women has reached new and destructive depths with the emergence of 'deepfake porn' against which innocent victims have little or no defence (Mort, 2023). Similarly, the rise of LLMs such as ChatGTP has produced equally powerful hacking and scamming tools that already available to criminals on the dark web (Swan, 2003). These are, in turn, typically human dilemmas that, in principle, are unlikely to have purely technical solutions.[9]

11. Beyond 'technoprudentalism'

None of the above is intended to overlook the outpouring of ideas and suggestions for effective action on the part of various concerned organisations and groups. For example, in late 2023, a paper on 'The AI Power Paradox' was published that sought to cast new light on ChatGTP and related issues. Written by IT insiders, it suggested that we'd collectively arrived at what they called a 'big bang' moment. This was defined as 'the beginning of a world-changing technological revolution that will remake politics, economies and societies' (Bremmer & Suleyman, 2023). The central message was that piecemeal responses to the new AI-affected environment won't work. Rather, what's needed is a 'whole new governance structure.' Further, to be effective, such a structure would require 'at least three overlapping governance regimes.' One would seek to establish the facts and advise governments on the risks posed by AI.' A second would work on 'preventing an all-out arms race between them.' A third would seek to 'manage the disruptive forces of a technology unlike anything the world has seen' (Bremmer & Suleyman, 2023 p 2).

The authors make it clear that what they refer to as this 'agile technoprudentialist' approach would need to be global and seamless. It would entail the kind of 'buy-in' only ever seen during periods of extreme crisis, and then fleetingly. There's a good deal of well-considered detail about how such a global effort would need to be structured and maintained. Yet, at the same time, a clear 'lack

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[7] Which is exactly what Open AI is doing as this paper is finalised. See Roose (2023). More power: latest ChatGPT can 'see' and 'talk.' Melbourne: Age, October 2.

[8] To say nothing of the parallel process of military R&D around the world. Given the scope of this arena, however, it needs to be treated as a separate enquiry, informed by sources within military intelligence and planning.

[9] Should the reader remain sceptical it is suggested that they view the Guardian documentary on 'deep fake porn' My Blonde GF directed by R. Morris (2023).

Table 1

Attributes of Technoscience.

- The myth of scientific autonomy has survived into the era of technoscience – an era in which science, utility and the market are interwoven, making it more dangerous than it ever was in the past.
- Technoscience overlooks or ignores the social, economic and political conditions under which tech innovation occurs.
- It affects human ecology in ways that are not immediately obvious and can therefore take years to become widely evident.
- It denies the extent to which technologies play a constitutive or actively shaping role in human affairs.
- Technoscience has a pervasive ethos of manipulation in which we're encouraged to see ourselves as intricate, largely autonomous systems, as if humans merely complex machines.
- It promotes software / hardware dualism that contributes to *a reductive worldview.*
- The combination of science, technology and capitalism sets up powerful forces that are difficult to counter, even by governments (afterKing, 2023b)

of political will' and a lack of 'effective constituencies' are also noted. Finally, there's a sting in the tail of this piece that brings an often-overlooked issue into focus. Namely that: 'AI may be a unique catalyst for change, but it is by no means the last disruptive technology humanity will face.' New technologies currently under development include quantum computing, biotechnology, nanotechnology, and autonomous robots, all of which 'have the potential to fundamentally re-shape the world.' The authors then optimistically add that 'Successfully governing AI will help the world successfully govern those technologies as well' (op cit, p. 11).

Following this were a series of meetings and other events in various technically advanced countries, each proposing new ideas, rules, frameworks for dealing with these issues. A G7 meeting in Japan produced a risk-based international code of conduct, for AI (Ministry of Foreign Affairs, Japan, 2023). In the UK the Prime Minister hosted an international gathering (prominently involving 'tech people') at Bletchley Park, the home of Second World War codebreakers (Milmo & Stacey, 2023). In the US, President Biden issued an 'executive order' that proved his government was at least listening. Among other things it contained a variety of provisions including that 'tech companies will be required to share test results for their artificial intelligence systems with the US government before they are released' (Milmo & Bhuiyan, 2023). The European Union began working several years ago on a number of relevant legislative innovations. Most recently, it has taken what may well be the most effective action to date by forcing the six largest IT firms to comply with new regulations on competition, advertising and interoperability (Naughton, 2024b). These are obviously helpful steps in the right direction.

From the point of view explored here all such proposals are indeed necessary and welcome. They suggest that the dangers of Chat et al. and AI in general are, indeed beginning to be taken seriously. However, some significant hurdles remain. One is due to the fact that the IT companies continue to operate as unreformed venture capitalists. They remain far too single-minded and powerful. Yet by now it's obvious that this particular 'cultural software' cannot, in principle, solve anything. If left to run unchecked it will continue to generate ever more dangerous and disruptive outcomes. Another aspect of the dilemma is that most recent, well-meaning suggestions, were either *conceived from within the very technoscientific worldview* identified here as problematic or, as likely, ignorant of its existence and implications thereof. This is demonstrated very clearly in videos featuring AI advocates (Guardian, 2023a, 2023b). When AI pioneer Fei-Fei Li was asked whether those involved in took any responsibility for how it was used, she replied 'AI is promising nothing. It's people who are promising or not promising. AI is a piece of software. It is made by people, deployed by people and governed by people' (Corbyn, 2023).

Such views are shared by many scientists, engineers, IT gurus and the like but at the cost of overlooking two key factors. One, discussed here, is that politics are inherent in technology, not something that emerges later. Another is the related assumption that technology is neutral. The STS (Science, Technology, Society) perspectives of earlier decades that provided useful insights into such questions appear to have retained little or no traction. Gaining a more balanced and insightful view of what technology is and does, how it can create and destroy more-or-less at the same time, will obviously take time, effort and, crucially, wisdom on the part of politicians and decision-makers. To get past these formidable obstructions will, as we have seen, require very different values and different ways of thinking. Back in 2019 Zuboff's work was arguably a primary source. Today there are other contenders for such a role, one of which may be Richard King's *Here Be Monsters*. Table 2 provides an overview of some of his broad suggestions from which more specific actions and projects can emerge.

The most serious and challenging impediments to managing any kind of high-tech future can, however, be expressed through a simple aphorism from the past. Namely that 'a house divided against itself cannot stand.' This is the great unspoken spoiler of any vision of a tech-led future arising from the fractured and unstable world we now inhabit. One might say that in a settled and peaceful world almost anything is possible. But unfortunately, the world we live in is deeply divided with serious conflicts backed by contending national and regional powers, most of whom have access to weapons and devices of terrifying power and destructive potential. At present, the levels of understanding and trust that would permit effective collaboration and the integration of effort to obtain the best results from advanced tech simply don't exist. Further, they won't exist until humankind can moderate its own demons and live at peace with itself.[10]

Moving back from a global outlook, and as a way of bringing this discussion to a conclusion, it's helpful to summarise some of the more immediate steps out of which strategies for countering the technoscientific fallacy are already being fashioned by people of

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[10] The need to understand and integrate the inner and outer dimensions of reality are, of course, among the core concerns of Integral Theory and Practice. NB. The author has chosen, in this instance, not to pursue this particular line of enquiry in spite of its many helpful contributions. See sections on Introductions to Integral futures: https://foresightinternational.com.au/?page_id= 1111

Table 2

Countering technoscientism.

- We need to revise how we understand and think about technology. Specifically, that all have an 'essential duality' which means, in turn, that no technology can be entirely good or bad.
- Proposed technical innovations need to be subjected to profound questioning and foresightful reflection by entities informed by positive human values.
- It is helpful to interrogate the products and proposals of Silicon Valley as incubators of a worldview that unconsciously promotes technological hubris.
- Based on evidence to date there's a strong case to question if there is any useful connection between so-called 'social media' platforms and democracy.
- It would be helpful to gain greater clarity regarding the important differences between harnessing natural forces and reconstituting nature.
- Notions of 'a new holism' should be carefully considered for the way that they challenge reductionist accounts of human society.
- New techniques are so powerfully transformative they need to be retained *within the public sphere.*
- Only a society alert to the reality of technological transformation will be able to exert greater control over the tools that now seek control over us.
- To understand that *technologies are inherently political* makes it easier to push back against authoritarian technics.
- The most salient and interesting thing about human beings is not only they are tool-users but that at a deeper level it is it is in their nature that they have a culture (after King, 2023b).

intelligence and good will. Some of the potentially most useful work involves shifting away from simply *rejecting* the new tech and exploring new ways to harness it for humanly desirable ends. Three brief examples follow. First, political scientist Steve McIntosh has created a chatbot based on the notion of 'de-politicising GPT.' He has introduced it to a group known as the Developmental Alliance and provided a half-hour online presentation to explain the 'how' and 'why' of this project (McIntosh, 2023). Second, Integral Life has created an 'AI-augmented' integral thinking program that offers a wide range of services and options for organisational well-being and development (Integral Life, 2024). Finally, Divya Siddarth and colleagues from the IT sector have set up an organisation called the Collective Intelligence Project. Her online presentation introduces viewers to short presentation on How AI and technology can, in her terms, 'fix each other'. While this sounds like a long shot, it gains credibility as she proceeds. For example, the topic requires 'a broader imagining of democracy and IT.' It proposes that financial and political power be 'separated' and suggests that there's space in the thinking and method for nature and future generations to each be provided a voice (Siddarth, 2023).

Clearly a great deal of work remains to be done at every level and in relevant domains from highbrow to low, practical to theoretical, idealistic to commercial. It's doubtful if a complete 'map' of this emerging territory exists at this relatively early stage. What is essential is to welcome quality insight, quality work wherever and whenever it appears.

12. Conclusion

This paper has reviewed some of the sources of 'careless innovation' and commented on the culture and worldview from which they emerged. It sought to identify some of the vital differences between so-called 'AI' and human intelligence. It briefly considered the nature and constitutive role of language in human life and culture and portrayed the creation of LLMs as a very particular kind of vandalism, reductive to the core, but certainly with a range of derivative uses. It also mentioned some often-overlooked aspects of the shift from analogue to digital media and suggested that this 'change of era' has unacknowledged consequences that have yet to be widely appreciated. The latter sections drew attention to the role of 'techno-critical' perspectives in coming to grips with the collective dilemmas created by ChatGPT and generative AI. Finally, well-meaning work recommending global strategies of response were judged inadequate in the face of severe obstacles and limitations.

It is notable that the critical role of human agency is far from universally recognised. As mentioned above, the tech companies themselves, Silicon Valley employees and many others throughout the industry seem almost completely unaware of the habits of perception and value, the very specific 'filters' in use, the ways they construe the world and how they under-perform when non-technical issues are involved (Cook, 2020). On the other hand, academics and technical experts who appear to see through the charade still remain, in a sense, 'outliers' in the debate with little or no purchase on how governments and corporations go about their daily world-changing work. It's time for them to take courage and project some of these essential suggestions further out into the worlds of political debate and social administration. For example, to merely describe the accelerating 'slippage' that 'AI' has interposed between language, truth and meaning is, itself, a demanding, 'high end' intellectual challenge. It follows that the role of the universities here is crucial. As is the wider understanding and use of Integral methods that clearly distinguish between inner / outer and individual / perspectives, as well as the active, shaping role of values and worldviews (Slaughter, 2022).

It's clear that notions of human agency need to be brought clearly into focus, respected, and included in decision-making processes across the board. As Allen notes, human beings become knowledgeable and perhaps even wise by 'making the effort to read, research, assimilate, digest, summarise, assess and prioritise information, and by learning to express (their) conclusions in clear writing.' Hence, one of the greatest risks is that 'people – starting with schoolchildren – will no longer make that effort but use AI as a shortcut to obtain the information they need.' However, copying information contributes little to human capability. Hence 'the danger is that as AI becomes smarter, humans become more stupid.' Then:

> Perhaps the deepest conclusion … is to remind us of the difference between AI as a machine for processing information, and human consciousness as the seat of awareness, feeling and understanding. It is consciousness that impels us to create art, or to think, wonder, want to know. It is also consciousness that contemplates the meanings evoked by art and literature and music. While AI can emulate many of the operations of the mind, it does not replace consciousness, precisely because that is not a function of mind, reason, or data processing.

(Allen, 2023).

What stands out quite clearly is the need to re-focus on the centrality of human identity, will and purpose as these are at risk of becoming some of the scarcest resources of all. It is essential to re-assert what it means to be human, what human impulses and needs should be brought to the fore, and by what processes and procedures we can best assert our vitality and will in the face of near-universal de-humanisation. For inspiration we could pay greater attention to the nature and use of skills and capacities that clearly demonstrate what living persons are capable of achieving. One example could be 'the woman who can see a 100 million colours.' Another is the increasing salience of those who are currently known as 'super recognisers' – people who can remember faces with the kind of discrimination that's likely to continue eluding merely technical systems (Adcock, 2022a, 2022b). Equally, we also need to view the claims of high tech, its salesmen and priests with extreme scepticism while, at the same time, doing everything possible to limit the empire of machines, disrupt the lockstep march of cold, calculating rational capability, and regain a sense of the living, breathing power that grows from our own shared humanity.

Reflecting on these issues over an extended period brings certain ideas and images to the fore One concerns a 2023 Catalyst documentary on *AI* vs *Human Intelligence* (ABC TV, 2023). It detailed how researchers had attempted to evaluate the latest versions of 'generative AI.' Most of the tests proved ambiguous. However, a segment in which ChatGPT had been prompted to generate a 'comedy' script fell flat. The presenter metaphorically 'died on stage' while the audience sat there silent and confused.

The routine lacked any hint of humour at all.

Note

The author would like to thank Reviewer 1 for helpful comments that helped to improve the tone and content of this paper.

Declaration of Competing Interest

none.

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