Tech Barons Dream of a Better World – Without the Rest of Us

Despite their promises to save the world, tech CEOs never seem to succeed. Why do we keep falling for it?

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Both now and in the past, Western liberal democracies have approached free market capitalism with a pattern of speculative and delusional infrastructure and technology investment. Our parents were promised flying cars. We were promised an "Internet for the People," a global platform on which everyone has a voice. Our world today, however, is one in which innovative digital technologies dazzle us, yes, but also where many of these promises – of supporting democracy, diversity or economic security – have not come to be.

So why do the political fantasies of the technocracy continue to tantalize us? How did we get to a point where those driving the future of technology – who hold such great power over our societies – pour

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trillions of dollars into investments, often built upon publicly – funded subsidies, with little positive impact on our lives or planet? Why are some of tech's greatest entrepreneurs so invested in the project of getting us all to leave our bodies and the only planet our species have ever known?

An answer can be gleaned by looking at our unconscious attachments to and assumptions regarding technology. A canonical example, dating back to Greek literature and philosophy and foundational to Western thought, science and civilization, is *deus ex machina*. Although the term's current use has been taken out of its original Greek context, it once referred to a trick in theater where actors who played Gods were brought, by mechanical cranes or rising platforms, onto the stage from above or below to pleasingly and quickly resolve the story for the audience. The mechanical technology of the time was a bridge between the heavens and the earth. Though a crowd favorite, it was also a "trick" by which a seemingly unresolvable story was unsatisfactorily resolved.

Today, thousands of years later, we continue to live in an age where gods and machines are conflated – one in which technological "solutions" are seen as a means of resolving the problems of society, yet never quite seem to deliver convincingly. We are becoming aware that the arc of social progress has irreversibly bent towards risk and precarity, while many believe only technology can save us.

Technologies and machines are also the loom on which we spin the myths that push forward the engines of speculative capital – the massive, irrational and undemonstrated, investments made in digital infrastructures – to produce technologies that can rescue us from the disasters of our own making. We now are realizing that these myths have not come to be. Many "innovative" systems, from facial recognition to machine-learning algorithms applied to human resources, insurance and bank loan systems, have been found, time and again, to discriminate against racial minorities, women and the poor.

Our blind trust in digital technology has had a huge impact not only on economic and political realities but also our beliefs and aspirations; from what we consider to be progress to the stories we tell ourselves around who an innovator is. Perniciously, these stories even appear to be fodder for those hoping to escape a supposedly unredeemable society and unsaveable planet. Whether due to global pandemics, climate crises, nuclear proliferation or gross economic

and political inequalities, collapse seems always right around the corner, if not here already, and the wealthiest and most powerful in our world are planning for it and profiting from it while the rest of us are left to accept our fate.

Technology is an important lens we can use to see and understand uni-polar, unfettered global capitalism, while also a major driver and shaper of economies across the world. Unfortunately, the technology of today, especially of the digital variety, has done little to address our human and planetary risks. Rather, as we have recently seen, it has become associated with addiction, consumerism, planned obsolescence, labor and environmental exploitation. We have spent the last few decades molding military technology (as the internet originally was) into a weapon that may compromise rather than support our ability to come together, societally and globally, to overcome the challenges we face.

Our aim in this essay is to understand how these technologies are presented to us as both inevitable, yet intentionally obscured. A lack of transparency or accountability around new technologies makes it hard to understand how and why they are created. It also strips us of the power we need to ensure it serves our peoples-based interests. We will also discuss how technology is driving the frontiers of capitalism beyond its traditional domains into our minds, bodies and outer space. Troublingly, these transformations rest upon the presumption that people and the planet itself are inconvenient, messy and in decline, and instead of doing everything we can to heal our planet and uplift our species, we instead design technologies that reinforce doubt and pessimism.

Before we can understand the whats and wheres of today's and tomorrow's technology, we need to interrogate the whys. In other words, what is the thinking and even psychology behind the digital technologies that are funded and ultimately developed? This will help us understand why technology is not only conceived of and treated as morally neutral – "scientific," "innovative," and forward-focused – but also why it is so often accorded with great social, even pseudo-religious, respect and pomp. Rather than being viewed as socially, politically or even narcissistically or delusionally constructed, we often view technology as "natural" and inexorable, even sublime and divine, ignoring its true origins and contribution towards particular ideological, political or economic agendas.

Let's consider the term "neural network," wherein brain cells, and how they function, are mapped onto a computer learning model, despite us neither knowing exactly how neurons function nor being able to express the ways these cells together help us "learn" in fail-safe mathematical or scientific language. Despite these problematic issues, we rarely see any interrogation of the implicit and unfounded assumptions behind how we treat or think about computer technology, such as: *The brain is a computer, we can model the computer after the brain, and therefore an artificial intelligence system is little more than a simulation of how our brains function, but with far greater computational horsepower*.

Of course neither a hard drive nor a sophisticated machine-learning algorithm is the same as the transcendent experiences of the mind, from synesthesia to consciousness. No AI, despite all the proclamations of its time having arrived, has ever passed the Turing Test, able to convince a human it is another person and not a machine.

Despite this, leading figures in the history of artificial intelligence, such as Marvin Minsky, have long treated body, mind and technology as interchangeable. Consider Minsky's (1986) famous text *The Society of Mind*, which presumes that the mind can be computationally modeled, if not augmented, simply by feeding an "intelligent" computer system with a large enough set of common sense rules. Not only does such a framing ignore emotional, spiritual and embodied forms of intelligence, it reduces our mind to a formal and limited set of rules. It ignores all the other ways we learn, know and do, our diverse cultural and social ontologies. It overlooks the social, even environmental, production of intelligence, wherein our minds, in communion with those of others, or even in relation to things, places, plants or animals, create meaning and knowledge.

Other foundational realms that have defined our approach to technology have emphasized extending biological and cognitive metaphors to naturalize technology as well. Consider the cybernetic turn in the computer sciences that dates back to the late 1940s, which explores the architectural and structural features of communication systems. The foundational science behind artificial intelligence, cybernetics also blindly equated the network architectures of technology with the human mind, and continues to be viewed as gospel. But in so doing, all the sweeping assumptions underlying cybernetics are ignored, particularly the genesis of its development as

a mathematical architecture of warfare and defense. Norbert Wiener, the founding father of cybernetics and a revered figure at MIT, defined the field as the "scientific study of control and communication in the animal and the machine" (Popova 2018). But when one turns to animal sciences, human biology or neurosciences, we see very few conclusive answers to how control and communication occur. This reveals how cybernetics like so many other myths and metaphors associated with technology is an example of cultural and political projection, rather than purely objective "science."

Moving forward to the present and near future, we must question today's obsession with the Singularity, the spiritual successor to cybernetics (Pein 2018). Many apostles of technology not only predict but promise this transcendent moment when computer systems come to exist that are so self-aware and highly optimized that they overtake humans in both physical and cognitive abilities, leading to major changes in civilization and perhaps even the extinction of humans altogether. The Singularity, as both idea and prediction, comes about when we develop technology for its own sake without considering the consequences, uncritically assuming somehow that it is our savior. Many, including those busy building some of the computer and digital technologies we discuss, believe the Singularity is a foregone conclusion.

The Singularity represents, perhaps better than any example, an embrace of technological inevitability, and shares much with some of the most influential political proclamations in recent history. In his highly influential book from 1992, *The End of History and the Last Man*, Francis Fukuyama declares that capitalism and Western liberal democracy's defeat of socialism with the culmination of the Cold War, represents an "end of history." This is notable given that, in many ways, this proclaimed end of history has been defined by continued plunder within a pro-capitalist framework across the planet that has posed existential threats to our and other species, essentially setting the stage for a final, tragic ending to this epoch of humanity. As we can see with the wave of protests for Black Lives across the world, certainly we are nowhere close to the "end of history" when it comes to questions of racial justice.

In the midst of these existential challenges, where have we taken technology? Not in a direction that directly combats what we face, be it inequality, climate change or the coronavirus pandemic, but instead

in the service of speculative capital and infrastructural investment, whether via space and 5G infrastructures, or artificial intelligence, all the while clinging onto the Singularity as the inevitable, yet spectacularly ill-defined, end point for humanity.

Why does it seem that tech companies in the West are so blind to our true predicaments, inventing new escapist realities and possibilities while avoiding the massive challenges that face all of humanity? This is not dissimilar from many other major players such as those within the energy and health sectors; for example, oil companies that have been aware of their impact on the climate crisis for decades yet refuse to confront the damage they themselves cause and even actively stymy alternatives. Perhaps the difference is that digital technology companies have convinced us they are different, somehow more enlightened and smarter than the rest of us. We know the names of the CEOs of the Big Tech companies but not the head of Exxon, Aetna, Bayer or Pfizer. Why is this? Why are we so interested in these titans of the tech industry, elevating some such as Elon Musk as social icons, even while many of them seem so interested in a world beyond or without 99.9% of us?

The most prominent technology "innovators" tend to share a common aspiration: prospecting new frontiers that represent supposed safety (for some) in times of great anxiety, whether relative to the COVID-19 crisis of today, or the spectacular march towards climate-induced extinction. No wonder then that the world's wealthiest man, Amazon's Jeff Bezos, has matter-of-factly stated that his personal, mission-driven purpose is focused on his for-profit space exploration company Blue Origin (Preza 2020). Peel a little further and you see in Bezos, a supposed innovator bringing our world into the future, a man full of fatalism.

When asked about his goals for space exploration – and eventual colonization – Bezos explains, "I'm pursuing [Blue Origin], because I believe if we don't we will eventually end up with a civilization of stasis, which I find very demoralizing" (Murphy 2018). Bezos, the wealthiest man in the world, is dispirited by a future of civilizational stasis. This is not surprising as his brand of innovation requires quite a bit of disequilibrium. How could a stable system exist when an online bookstore becomes one of the most profitable companies in the world? Is a system stable when Amazon warehouse workers make $27,000 a year on average, more or less at the poverty line, while

Bezos makes nearly $9 million an hour, and is now over $30 billion richer since the onset of the COVID pandemic (Hamilton 2020)? One does not have to probe too deeply to see that Bezos's race for space cannot be understood separately from the perpetuation of the unequal conditions he exploits and sustains on Earth.

To be fair, Bezos is not representative of every tech oligarch. But the Amazon kingpin is not alone, either. Elon Musk, Richard Branson, and numerous other billionaires have put their rhetorical and financial weight into space infrastructures and AI.

From Elon Musk, for example, beneath a thin veneer of innovative do-anything spirit, we glean a cynical defeatism. In "Lo and Behold, Reveries of the Connected World" (2016), he tells filmmaker Werner Herzog that he is intent on pursuing space because society, at any moment, could come apart at the seams, due to natural or man-made disasters. Musk posits that now is the time to ensure that human beings have the opportunity to become an interplanetary species before it's too late and we no longer have the energy or technology to get all the way to Mars. While we recognize Musk's investments into solar energy, his continued attention to space and AI raises several important questions: if Musk is such an innovative genius and humanitarian, why is his energy not primarily focused on solving the problems he sees on our planet? Why not focus all his efforts on developing technologies to empower our species and keep the planet livable instead of, for example, obsessing over how to terraform Mars for the benefit of a few hundred people? It's a fantastic achievement to see Musk's SpaceX initiatives in action, including the recent launch that occurred at the end of May 2020, but who exactly are they intended to benefit?

Musk has expressed concern about Artificial Intelligence systems overtaking humans; in terms of intelligence, decision-making, and ultimately usurpation of political and economic power. He has pointed out that AI must be "optimized" carefully, because, intentionally or not, it could have disastrous effects. In response, Musk has devoted some rhetorical and financial weight to Open AI, which he co-founded with millennial billionaire and YCombinator founder Sam Altman. Microsoft also just contributed $1 billion to the initiative as well (PYMNTS 2019). Open AI describes its mission as funding and supporting research devoted to "discovering and enacting the path toward safe artificial intelligence" (OpenAI 2021).

But what is safe, and who defines it? Should we keep building toward an "AI-runs-everything" Singularity given such dramatic concerns? If we take Musk's stated intentions (and concerns) at face value, the result is puzzling. For example, why does he devote time and resources to warning us about AI, while also serving as one of its biggest backers, via his for-profit company Neuralink, (which has received over $150 million of funding, much of it personally from Musk [Markoff 2019]) that engineers implantable brain-machine interfaces? Yes, we could imagine Neuralink helping people living with disabilities a great deal, for example in assisting their ability to walk without any working limbs. But there's much more to what Neuralink represents: an interface that can transform the man-machine relationship from tool to full cyborg. Would Musk not want to stop work in this area if he feels that we are headed toward a world governed by sociopathic AIs? Instead, he repeatedly cites human frailty and deficiency in comparison to AI, advising us that we should just "go along for the ride" (Musk 2020). Is Open AI nothing but a finger placed in a dike about to burst from the flood he has helped create, a failed attempt that he himself recognizes to have his cake and eat it too? Whose ride is he talking about?

We must ask some tough questions of those we have elevated onto the big stage as "technology innovators" and interrogate the underlying psychology of their motivations and aspirations. Innovation once meant introducing transformations to take our world toward tomorrow, ostensibly inspired by a spirit that these achievements could lift all of us up – our businesses, citizens, environments and societies. Innovation is a term commonly associated with resourcefulness, doing more with less, creating within conditions of scarcity, creating life out of death. Innovation is a playful, creative process, one guided by humanism in creating technologies of all kinds that together we can celebrate and enjoy.

Where did that kind of innovation go? Can a cynical defeatist actually be considered an innovator? Let's look at Apple for example, which has long been admired within the gospel of tech innovation. Is this company actually innovative given that it designs its iPhones with a ticking "planned obsolescence" time bomb? Why don't we instead elevate people like Los Angeles-based social entrepreneur Eric Lundgren who has taken electronic waste, repaired it into working

machines, hired dozens of workers, and created a multimillion-dollar business? Lundgren's creativity and resourcefulness has been instead rewarded by a felony conviction and prison sentence, all because he was actually innovating – creating value out of trash; doing more with less.

As we uplift these myopic, opaque and self-serving approaches to technology innovation into heroic feats, it is no wonder that so much money is going towards literal and figurative moonshots, ones that treat not only our planet but also our bodies, minds and frankly the rest of the universe, as spaces to be occupied and submitted to the logic of speculative capital; throwing vast sums of money into far-out technologies to shape and reshape society as a whole and ensure outrageous returns on investment. Once enough key investors (we even call them "angels" sometimes) see an opportunity and sink enough money into an idea, the rest of us are forced to go along for the ride, regardless of the social utility of the product or service.

Take ride-sharing companies like Uber and Lyft as examples. They are not profitable businesses and rely on constant injections of cash from their investors (Newcomer 2019) to keep their doors open until such time as they can fully undermine traditional taxi services by offering artificially low prices (thanks to their investors' deep pockets), changing legislation in their favor and eventually replacing human drivers altogether. This is what passes as innovation these days, and represents the darker side of the "disruption", another branding term being constantly bandied about.

Or consider that experts predict that $2.7 trillion of investment are required to bring about 5G networks around the world (Greensill 2019). Why? To provide us with networks that even the network operators themselves have no idea what to do with or how to recoup their investment on (Blum et al. 2019). It is very short-sighted to expend so much money on technology whose main benefit will be to bring virtual reality to our mobile phones while likely causing a plethora of negative outcomes for most of humanity, including: increased use of energy to power the network by a factor of 2 or 3 (Hardesty 2020), widespread automation leading to unemployment (Smialek 2017), and the creation of millions of tons of e-waste (Karottu and Cummings 2019) as perfectly well-functioning network and terminal equipment is thrown away to make way for a new generation of

mobile technology. In response to both real and imagined health impacts from 5G networks, there has been a great deal of concern and organized action to halt 5G. What has generally been lost in these discussions are the far larger challenges 5G poses as a mechanism of massive and pervasive surveillance, threatening our economic and political lives and endangering work and workers of the future.

This approach to investment is not only unsustainable, it is essentially speculation for its own sake – moving money from one sector to another, without producing much of value to everyday people, all while putting our planet in further peril. It is striking how speculative capital is also focused on a pivot away from the Earth even as technology-fueled capitalism moves towards a 5G-enabled, workerless "brave new world" in order to overcome the first contradiction of capital: that of organized labor moderating capitals' excesses. The addition of non-planetary geographies and resources as viable areas for capitalist expansion make sense as the system is confronted with the second contradiction of capital, wherein the overexploitation of Earth's finite natural resources like water, air and minerals are "not only threats to profits and accumulation, but also to the viability of the social and 'natural' environment as a means of life" (O'Connor 1988). In the short term, destroying the planet is a good business move, but not in the long term – that is unless you can find other places in which to extract primary resources and surplus value, and perhaps inhabit eventually: hence the technological tendency towards outer space and our minds. So we keep the logic of accumulation, just change the scenery.

With regards to space exploration and infrastructures, our conversation does not start and end with Elon Musk. As mentioned, Jeff Bezos (via Project Kuiper and Blue Origin) and Richard Branson (Virgin Launch, Virgin Galactic, etc.), amongst other technology billionaires, are in the mix as well. Musk, at present, however, is the dominant player in this market with his companies SpaceX and its subsidiary, Starlink.

Despite rhetoric from tech companies regarding "connecting the unconnected," or connecting the "last billion" (Graydon and Parks 2020) – in other words getting the entire global population online –, it seems evident that the initial users of new space-based and 5G networks will be commercial, and tightly aligned with supporting other infrastructures and services of global capital. Musk's Starlink,

a low-Earth orbit (LEO) satellite constellation, is targeting low-latency solutions like high-frequency trading, providing connectivity for ships and airplanes, and supplemental backhaul for 4G and 5G base stations. It does make economic sense when considering that these projects must recoup massive R&D investments including building and launching thousands of satellites or hundreds of thousands of new wireless base-stations in the case of 5G.

Nevertheless, it is striking and unfortunate that these efforts are unlikely to impact unconnected populations, despite major lip-service from both new entrants like Starlink and Kuiper, as well as traditional mobile networks operators. The caveat to this is the possibility, in the case of the LEO constellations, that once they have secured sufficient income from large commercial users and the military, they should have plenty of extra capacity to provide services to uncovered areas. What remains to be seen is if these new generations of non-terrestrial connectivity will actually be affordable for the poor and marginalized populations that comprise most of the "unconnected."

Two out of five of techno-capitalism's sacred GAFAM brotherhood (Google, Amazon, Facebook, Apple, and Microsoft), Amazon and Facebook, have low-Earth orbit satellite ventures in the works. In addition, Google is trying to get above Earth with its Loon project, albeit at a much lower altitude and within the atmosphere, using high-altitude platform station (HAPS) technology, floating 4G and WiFi-enabled balloons in the upper atmosphere, beaming connectivity down to earth. Even Apple, despite having little experience in creating networks, is rumored to be entering the fray, having recently hired satellite and wireless technology experts to join a secretive team (Gurman 2019).

While these digital giants operate massive amounts of physical infrastructure already, primarily fiber optic cables and data centers, their networks are private and internal, and therefore inaccessible to public governance or oversight. That is a concern given that they want to now operate global, public-facing internet provision services as well, further consolidating their ability to monetize all of we, the public's, activities and movements, while their decisions, whether around surveillance, privacy, or acquisition of intimate data, are made behind closed doors. With these corporate actors controlling every layer of the "stack," from infrastructures to networks to software platforms and algorithms, it will be nearly impossible to know what data

they harvest, or how it is retained or acted upon, nevermind retaining any semblance of net-neutrality.

Space-based "connectivity technologies" present a host of other concerns. For one, they are "top-down" in more than one sense – not democratic or cooperative technologies, but controlled by a small capitalist elite. We can assume that for many there is something unnerving about having the globe encircled by thousands of satellites, balloons and drones. Perhaps this is because, from a spatial perspective, there is no way to know what infrastructure you are actually connecting to, where it is or what it is doing.

Another issue is the overcrowding of and debris associated with space and the orbits around our planet (Witze 2018), which remain, at least legally, a publicly and collectively regulated commons overseen by the United Nations. Since 1957, 8500 objects, of which around 5000 are satellites, have been launched into space (UN Office for Outer Space Affairs 2021). Starlink alone has requested permission to launch tens of thousands of satellites into orbit (Henry 2019b), and even admitted this is far more than they need to be commercially viable (Henry 2019a). Disappointingly, they have already shown, even with around 500 satellites in orbit, to be uninterested in coordinating with others (O'Callaghan 2019a). It seems almost inevitable at this point that we will clutter the areas around the Earth with many, many more objects than ever before. And these objects, mainly satellites, will have an ever-increasing importance for activities on our planet.

This coming reality has not escaped the militaries of countries with substantial existing investments in space, and even some that do not play a major role in the space-infrastructure race (Grush 2019). While maneuvering to convert space into a bellicose environment decreased substantially in 1993 (Trevithick 2019a), when US President Bill Clinton's administration brought the Reagan-era Strategic Defense Initiative to an end, the topic seems to be back on the radar. China, Russia and the US are all working hard to position themselves as the premiere military power outside of Earth (Majumdar 2018): gun-boat diplomacy for the Space Age.

As an example, consider that as the latest round of space colonization is being proposed by US corporations, the sixth branch of the US Armed Services, and the first new military service since the Air Force was created in 1947, was launched last year: the Space Force.

Mark Esper, US Secretary of Defense, described the purpose of the Space Force thusly: "to make sure that we can preserve space as a global commons… It's important not just to our security, but to our commerce, our way of life, our understanding of the planet, weather, you name it. So it's very important that we – we now treat it that way and make sure that we're prepared to defend ourselves and preserve space" (Esper 2020). While Esper describes space as a commons, he also makes clear what the Space Force is really about: making outer space a safe place exclusively for US companies and its military.

The intertwining of corporate and military interests in space (Tingley 2020) is worth exploring further as the government has changed its rules to allow for private companies to launch military equipment into space and has been actively creating a supportive regulatory and funding ecosystem for such. For example, SpaceX won its first big-ticket classified military launch contract for the Falcon Heavy rocket in 2018, when Musk's company was awarded a $130 million contract for the launch of Air Force Space Command (AFSPC)-52 satellite (Erwin 2018). These juicy government contracts, in many cases, create the incentive and capital injections that new launch companies require to literally get off the ground (Fernholz 2018). The unspoken but assumed quid pro quo was made evident when SpaceX President and Chief Operating Officer Gwynne Shotwell publicly admitted the company would be willing to launch offensive weapons into orbit for the US military if asked (Trevithick 2018b). Indeed, SpaceX was awarded a multi-million dollar contract in 2018 as part of the Defense Experimentation Using Commercial Space Internet program to install satellite receivers in military aircraft (Boyle 2018). The company was even slated to assist in a live-fire demo with the US Air Force and Space Command as part of testing for the Advanced Battle Management System in April (Gresik 2020), but the exercise was postponed due to the coronavirus pandemic.

It is troubling that the next chapter of space exploration is being written by the military and a few billionaires, while the rest of us are barely subjects in their story. As we've explained, next generation space networks are being specced and built to provide capacity for military capabilities, something we have also seen with 5G networks. The original ARPAnet, what eventually became the internet, was funded by US taxpayers with heavy military involvement, so there is

certainly historic precedent for this kind of involvement; and while concerning, it should not be too surprising that the iconic technology of our times continues to loop back to its roots as a military network.

The uneven application of so-called technological progress was apparent at the dawn of the Space Age. Consider that the race for space has historically excluded 99.9% of the population; this fact is not lost on those left behind. Fifty years ago, Gil Scott Heron's epic "Whitey on the Moon" narrated the discontent of paying taxes to put "whitey" on the moon while black Americans suffered from racial injustice, the absence of civil rights and dire poverty. Why, with such profound inequalities, would the government use so much of the country's wealth to travel to space?

Heron knew that this "innovation" was not for him, fellow black Americans or really anyone but the uber-rich. We see this in clear action today with a massive, unseen wave of global protests in support of black lives and justice. Whether it is publicly funded space exploration (NASA) that Heron critiques, or even worse the private–military expeditions we have discussed, it's hard to see any benefit for most people. Heron sums it up when he chants, "a rat done bit my sister Nell with whitey on the moon. Her face and arms began to sweat and whitey's on the moon. I can't pay no doctor bills but whitey's on the moon. Ten years from now I'll be paying still while whitey's on the moon. The man just upped my rent last night cause whitey's on the moon."

Not much has changed in 50 years in terms of how the oppressed view the clamor for space. In 2016, pioneering Black American hip-hop artists A Tribe Called Quest released a song called "The Space Program." It goes:

> It always seems the poorest persons are forsaken, dawg... They'd rather lead us to the grayest water poison, deadly smog mass un-blackening, it's happening you feel it y'all? Rather see we in a three-by-three structure with many bars. Leave us where we are so they can play among the stars. They taking off to Mars, got the space vessels overflowing. There ain't a space program for n*****s, yeah, you stuck, stuck, stuck.

The circular process of military and public funding working hand in hand with companies to privatize the profits and socialize the adverse

effects and costs back onto the public is not unique to digital technology. But it feels particularly perverse within the well cultivated, myth-saturated backdrop that we live within: of creating technologies to "liberate" humanity when ultimately 99% of the power and profits end up with the tech companies that dominate our world. In the meantime, the question of how we, the human species, will live on Earth moving forward is not only shoved aside, but met with fatalism, indifference and even war posturing.

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What is happening here? Not a focus on "better tech," or any clear examples of how all of this will benefit humanity and combat the existential challenges we face, from pandemics to the climate crisis to arms proliferation. Instead, it is survivalism in action. In 2018, technology writer Doug Rushkoff published an essay entitled "Survival of the Richest: The wealthy are plotting to leave us behind" (Rushkoff 2018), in which he tells the story of being invited to deliver a well-compensated speech to a number of investment bankers on the future of technology. To his surprise, few of the questions he received were about that, let alone the topic of his writing: humanizing technology. He was instead peppered with questions about "the (apocalyptic) event," a "euphemism for the environmental collapse, social unrest, nuclear explosion, unstoppable virus, or Mr. Robot hack that takes everything down" (ibid.).

Rushkoff was asked about angry working-class mobs, which regions were likely to be more devastated by climate change, and how to compensate and trust security guards after the whole system collapses. And then he had an epiphany of why he was invited into the room:

> Taking their cue from Elon Musk colonizing Mars, libertarian venture-capitalist Peter Thiel pumping himself with young people's blood to reverse the aging process, or Sam Altman and Ray Kurzweil uploading their minds into supercomputers, [the oligarchs] were preparing for a digital future that had a whole lot less to do with making the world a better place than it did with transcending the human condition altogether and insulating themselves from a very real and present danger of climate change,

> rising sea levels, mass migrations, global pandemics, nativist panic, and resource depletion. For them, the future of technology is really about just one thing: escape. (Ibid.)

In this moment of pandemic hysteria, buttressed by technology-fueled misinformation, we can hopefully gain clarity and drive Rushkoff's conclusions home: Those holding economic and political instruments of power in our world not only disbelieve in their "innovation" project but in fact question our species' survival. Rushkoff, like us, is arguing for technology that serves the interests of all people, but his attempts to convince these hedge fund managers otherwise bore no fruit. And Rushkoff's great insight was this: The financiers who are behind speculative (often delusional) tech investments are, at their core, fatalists. They have no hope for the future of our planet – belying the marketing rhetoric of the tech companies they invest in.

How can we move past the bait and switch of those constantly telling us that technologies are beneficial, even aspirational, when, in many cases, they are the opposite? How do we get beyond the hijacking of language and words like "innovation" to stop being blinded and instead see the painful reality: Those building and monetizing the technologies of today and tomorrow themselves seem to question the "value" those technologies hold to our planet and species? They even seem to recognize, if not endorse, a path toward collapse. The tech barons who have broken every record imaginable in terms of philanthropic giving are at the same time grossly benefiting from the rules, both laws and code, they write around how our economic, social and political systems function. In an era of great philanthropy, we see even greater greed, hoarding and oligarchic transference of power than before, a time when "winners take all" (Giridharadas 2019).

If the bankers, venture capital investors, hedge fund managers and technology innovators are going to leave us behind, then it seems those of us with far less have an opportunity to move our focus back to the question of how technology can serve us all, and what ways we can get there. As Rushkoff puts it: "those of us without the funding to consider disowning our own humanity … don't have to use technology in such antisocial, atomizing ways" (Rushkoff 2018).

Perhaps a useful path moving forward would be to not ignore "space" but consider how it, like our planet and species, might be re-considered in relation to the collective precarity by which we live.

We have explained how the super-wealthy look to the sky, stratosphere and interplanetary realm as a place to escape collapse, not so different from their Dr. Strangelove-like bunkers and super yachts. Although space is being falsely proselytized as an alternative to the here and now, as a way out of the dangerous excesses of late capitalism by those who have most profited off of such a system, that's not how space has been treated by nearly anybody else throughout the millennia. Space in many traditional and indigenous cultures is relational to planetary living. Indigenous astronomy, from most every traditional culture in the world, sees space and the cosmos dialogically with our planet, our bodies, our minds and beliefs. Our practices of living, our relationships to our land, are interconnected with outer space. One is not the delusional panacea to the other; they dialectically inspire and cohabitate.

From those obsessed with outer space and the aim to leave the damaged Earth behind, we see a similar, absurd attachment to the freeing of our minds from our fragile, weak bodies. Many of our technology thought leaders and innovators see our physical bodies as encumbrances, believing we can and should merge our consciousness with the computer in a sort of *cupio dissolvi* (or the wish to be dissolved into a cyborg deity) for the digital age. But how can there be knowledge, much less ethics, without embodiment? Do our minds really exist outside our bodies? Are not our minds intimately tied to the peoples, places and times we inhabit or interact with? How can a machine, unable to feel pain, be expected to act within a moral code that it cannot relate to?

As the curtain rises on what might be the final act of late capitalism, we remain in suspense, much as our Greek ancestors thousands of years before, waiting for a savior, a *deus ex machina*, to be lowered onto the stage. But it's time to step out of the disabling ruse of inevitability, weakness and helplessness we have fallen into and push aside the fear of the unknown that has allowed a few cynical "innovators" to create a future in which we have even less power, agency or ways to keep them accountable. What if we instead looked at each and every new technology from a place of collective criticality, engaging in robust dialogue around what we are doing? What if we opened up the most interesting space of all: the one where we allow different communities across the world to direct their own digital destinies? Why don't we ask whether we should be creating certain

technologies, and if so for whom and for whom not? Who builds and profits from these systems? What is their mindset and agenda? We must step away from delusional techno-inevitability and toward a path of collective power and imagination.

There are a few concrete ways we can do this.

At the end of the day, we must consider who technology serves and who it objectifies, instrumentalizes or threatens. It is hard to imagine different outcomes without a major, sweeping change to the ways technology development is funded. We should rethink who makes design, engineering, social and political decisions regarding the development and roll-out of technology, in ways that are win-win, rather than ones that elevates oligarchic gain over everyone else. Our current mode of speculative investment is incompatible with putting pro-people and pro-planet goals at the forefront. We must reorient our vision for technology away from the extraction of Earth's limited energy and mineral resources and demeaning, physical and virtual sweatshop labor to one that creates value for people and contributes to healing the planet. It's time to do away with the absurd myths of transcendence and speculative longshots when it comes to the technologies that so deeply impact our lives.

Another important shift is to close the distance – physically, socially and politically – between those that develop and roll out technology and those whose lives are subject to it. We must stop elevating and enriching tech "innovators" whose approaches toward such innovation is unsustainable and costly to almost anyone but themselves. We should be careful with whom we entrust the keys to our future. It is simply untenable for our society to continue to rely on the whims of cynics and misanthropes to helm our collective ship into the future.

There are people, communities and organizations all over the world doing the kind of innovation that we would like to see. We mentioned Eric Lundgren above in this piece, and he is but one of so many examples revealing how technologies can honor our planet, workers and the spirit of resourcefulness. That example is about repurposing and reusing technology that has already been developed, sold and used, generating value for new users and keeping it out of landfills for as long as possible. At this very moment thousands upon thousands of 2G, 3G and 4G base-stations are being ripped down to make way for 5G. Much of that equipment can easily be reconfigured to work

with free and open source software and could be installed in unconnected communities. Instead most of it will rust in an e-waste graveyard, likely somewhere in Africa, further threatening our planet and species. This type of "recycle and repair" creativity must be coupled with regulation that ensures people are not only able to fix and repair their devices but that minerals and other primary resources are sourced and extracted responsibly. Furthermore, technology must be designed to last as long as possible, removing planned obsolescence completely from the tech business model.

Much of this piece has looked at infrastructures, so it is crucial that we question why, in most places on earth, it is difficult, expensive and illegal for communities and everyday people to build their own communication networks. As we have seen above, LEO satellite constellations and 5G networks are incredibly complex and expensive, meaning they can likely never be built or controlled by everyday people to ensure fair prices, or the protection of personal information. But with a "digital bill of rights" (Srinivasan 2020) for the world, including more favorable regulation, people could get more involved, through collectives, municipalities or even sets of small businesses or cooperatives. Imagine if the $2.7 trillion supposedly needed for 5G was invested in participatory ways to support building networks where people want and need them, and that included communities and the public in the governance of the networks and their data.

We live in a time where proposals to combat the gross inequalities of our planet are more popular than ever. Universal basic income, as a means of re-directing the flows of profits and wealth away from plutocrats toward a more balanced society, is wildly popular, and has become a reality, at least temporarily, around the globe during the coronavirus pandemic. There is substantive conversation about digital enterprises and cooperatives that give their workers greater equity in the business (Platform Cooperativism Consortium 2021); imagine an Uber-type company but one in which the drivers are able to share in the company's value. Upwards of two-thirds of Americans support regulating, if not altogether breaking up tech monopolies like Amazon or Facebook (Stewart 2019). Proposals around paying people for their data are now on the mainstream stage, as well (Hautala 2019).

These discussions are bubbling up, yes, but at the same time, as we follow the money, we see greater and more absurd speculative investment into futures in which most of us do not matter and do

not exist. We see billions upon billions of dollars poured into initiatives that further lock people into echo chambers of psychological and behavioral manipulation and constant 24-7-365 surveillance. We see the destruction of journalism as disinformation reigns supreme, elevating authoritarians and neo-fascists to positions of great power. We are witnessing the socializing of all the costs and pain, and the privatization of all the profits in the hands of those who have such little faith in the rest of us or the planet that birthed them. It's time for a digital future where all of us can thrive.

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