

Why Silicon Valley can't fix itself

Tech insiders have finally started admitting their mistakes – but the solutions they are offering could just help the big players get even more powerful.



Big Tech is sorry. After decades of rarely apologising for anything, Silicon Valley suddenly seems to be apologising for everything. They are sorry about the trolls. They are sorry about the bots. They are sorry about the fake news and the Russians, and the cartoons that are terrifying your kids on YouTube.

But they are especially sorry about our brains.

Sean Parker, the former president of Facebook – who was played by Justin Timberlake in *The Social Network* – has publicly lamented the “unintended consequences” of the platform he helped create:

“God only knows what it’s doing to our children’s brains.”

Justin Rosenstein, an engineer who helped build Facebook’s “like” button and Gchat, regrets¹ having contributed to technology that he now considers psychologically damaging, too.

“Everyone is distracted,” Rosenstein says. “All of the time.”

Ever since the internet became widely used by the public in the 1990s, users have heard warnings that it is bad for us. In the early years, many commentators described cyberspace as a parallel universe that could swallow enthusiasts whole. The media fretted about kids talking to strangers and finding porn. A prominent 1998 study² from Carnegie Mellon University claimed that spending time online made you lonely, depressed and antisocial.

In the mid-2000s, as the internet moved on to mobile devices, physical and virtual life began to merge. Bullish pundits celebrated the “cognitive surplus”³ unlocked by crowdsourcing and the tech-savvy campaigns of Barack Obama, the “internet president”⁴. But, alongside these optimistic voices, darker warnings persisted. Nicholas Carr’s *The Shallows* (2010) argued that search engines were making people stupid, while Eli Pariser’s *The Filter Bubble* (2011) claimed algorithms made us insular by showing us only what we wanted to see.

¹ <https://www.theguardian.com/technology/2017/oct/05/smartphone-addiction-silicon-valley-dystopia>

² <https://pdfs.semanticscholar.org/5db0/58de2e3637febb07b759a08d4e6cac0f1955.pdf>

³ <https://www.theguardian.com/books/2010/jul/10/cognitive-surplus-connected-clay-shirky>

⁴ <https://www.theguardian.com/world/2010/may/10/barack-obama-cant-work-ipad>

In *Alone, Together* (2011) and *Reclaiming Conversation* (2015), Sherry Turkle warned that constant connectivity was making meaningful interaction impossible.

Still, inside the industry, techno-utopianism prevailed. *Silicon Valley* seemed to assume that the tools they were building were always forces for good – and that anyone who questioned them was a crank or a luddite. In the face of an anti-tech backlash that has surged since the 2016 election, however, this faith appears to be faltering. *Prominent people in the industry are beginning to acknowledge that their products may have harmful effects.*

Internet anxiety isn't new. But never before have so many notable figures within the industry seemed so anxious about the world they have made. Parker, Rosenstein and the other insiders now talking about the harms of smartphones and social media belong to an informal yet influential current of tech critics emerging within *Silicon Valley*. You could call them the “tech humanists”. Amid rising public concern about the power of the industry, they argue that *the primary problem with its products is that they threaten our health and our humanity.*

It is clear that *these products are designed to be maximally addictive*, in order to harvest as much of our attention as they can. Tech humanists say this business model is both unhealthy and inhumane – that *it damages our psychological well-being* and *conditions us to behave in ways that diminish our humanity.*

The main solution that they propose is better design. By redesigning technology to be less addictive and less manipulative, they believe we can make it healthier – we can realign technology with our humanity and build products that don't “hijack” our minds.

The hub of the new tech humanism is the *Center for Humane Technology* in San Francisco. Founded earlier this year, the nonprofit has assembled an impressive roster of advisers, including investor Roger McNamee, Lyft president John Zimmer, and Rosenstein. But its most prominent spokesman is executive director Tristan Harris, a former “design ethicist” at Google who has been hailed by the *Atlantic* magazine as

“the closest thing Silicon Valley has to a conscience”.

Harris has spent years trying to persuade the industry of the dangers of tech addiction. In February, Pierre Omidyar, the billionaire founder of eBay, launched a related initiative: *the Tech and Society Solutions Lab*⁵, which aims to

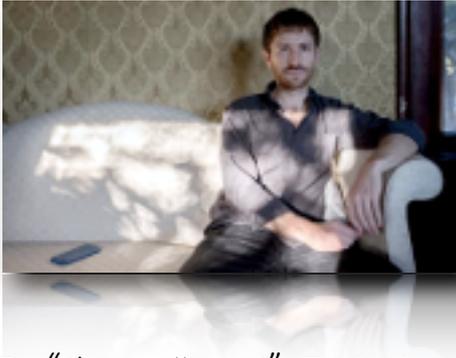
“maximise the tech industry's contributions to a healthy society”.

As suspicion of *Silicon Valley* grows, the tech humanists are making a bid to become tech's loyal opposition. They are using their insider credentials to promote a particular diagnosis of where tech went wrong and of how to get it back on track. For this, they have been getting a lot of attention. As the backlash against tech has grown, so too has the appeal of techies repenting for their sins. The *Center for Humane Technology* has been profiled – and praised by – the *New York Times*, the *Atlantic*, *Wired* and others.

But tech humanism's influence cannot be measured solely by the positive media coverage it has received. The real reason tech humanism matters is because some of the most powerful people in

⁵ <https://www.omidyar.com/our-work/tech-and-society-solutions-lab>

the industry are starting to speak its idiom. Snap CEO Evan Spiegel has warned about social media's role in encouraging "mindless scrambles for friends or unworthy distractions", and Twitter boss Jack Dorsey recently claimed⁶ he wants to improve the platform's "conversational health".



Tristan Harris, founder of the Center for Humane Technology. Photograph: Robert Gumpert for the Guardian

Even Mark Zuckerberg, famous for encouraging his engineers to "move fast and break things", seems to be taking a tech humanist turn. In January, he announced⁷ that Facebook had a new priority: maximising "time well spent" on the platform, rather than total time spent.

By "time well spent", Zuckerberg means time spent interacting with "friends" rather than businesses, brands or media sources. He said the News Feed algorithm was already prioritising these "more meaningful" activities.

Zuckerberg's choice of words is significant: *Time Well Spent* is the name of the advocacy group that Harris led before co-founding the *Center for Humane Technology*. In April, Zuckerberg brought the phrase to Capitol Hill. When a photographer snapped⁸ a picture of the notes Zuckerberg used while testifying before the Senate, they included a discussion of Facebook's new emphasis on "time well spent", under the heading "wellbeing".

This new concern for "wellbeing" may strike some observers as a welcome development. After years of ignoring their critics, industry leaders are finally acknowledging that problems exist. Tech humanists deserve credit for drawing attention to one of those problems – the **manipulative design decisions** made by *Silicon Valley*.

But these decisions are only symptoms of a larger issue: the fact that the digital infrastructures that increasingly shape our personal, social and civic lives are owned and controlled by a few billionaires.

Because it ignores the question of power, the tech-humanist diagnosis is incomplete – and could even help the industry evade meaningful reform. Taken up by leaders such as Zuckerberg, tech humanism is likely to result in only superficial changes. These changes may soothe some of the popular anger directed towards the tech industry, but they will not address the origin of that anger. If anything, they will make *Silicon Valley* even more powerful.

The *Center for Humane Technology* argues that technology must be "aligned" with humanity – and that the best way to accomplish this is through better design. Their website features a section⁹ entitled *The Way Forward*. A familiar evolutionary image shows the silhouettes of several simians, rising from their crouches to become a man, who then turns back to contemplate his history.

⁶ <https://twitter.com/jack/status/969234275420655616>

⁷ <https://www.facebook.com/zuck/posts/10104413015393571>

⁸ https://pbs.twimg.com/media/DadTMxIW4AAUz_h.jpg:large

⁹ <http://humanetech.com/problem#the-way-forward>

“In the future, we will look back at today as a turning point towards humane design,” the header reads.

To the litany of problems caused by “technology that extracts attention and erodes society”, the text asserts that “humane design is the solution”. Drawing on the rhetoric of the “design thinking” philosophy that has long suffused *Silicon Valley*, the website explains that humane design

“starts by understanding our most vulnerable human instincts so we can design compassionately”.

There is a good reason why the language of tech humanism is penetrating the upper echelons of the tech industry so easily: this language is not foreign to *Silicon Valley*. On the contrary, “humanising” technology has long been its central ambition and the source of its power. It was precisely by developing a “humanised” form of computing that entrepreneurs such as Steve Jobs brought computing into millions of users’ everyday lives. Their success turned the *Bay Area* tech industry into a global powerhouse – and produced the digitised world that today’s tech humanists now lament.

The story begins in the 1960s, when *Silicon Valley* was still a handful of electronics firms clustered among fruit orchards. Computers came in the form of mainframes then. These machines were big, expensive and difficult to use. Only corporations, universities and government agencies could afford them, and they were reserved for specialised tasks, such as calculating missile trajectories or credit scores.

Computing was industrial, in other words, not personal, and *Silicon Valley* remained dependent on a small number of big institutional clients. The practical danger that this dependency posed became clear in the early 1960s, when the US Department of Defense, by far the single biggest buyer of digital components, began cutting back on its purchases. But the fall in military procurement wasn’t the only mid-century crisis around computing.

Computers also had an image problem. The inaccessibility of mainframes made them easy to demonise. In these whirring hulks of digital machinery, many observers saw something inhuman, even evil. To antiwar activists, computers were weapons of the war machine that was killing thousands in Vietnam. To highbrow commentators such as the social critic Lewis Mumford, computers were instruments of a creeping technocracy that threatened to extinguish personal freedom.

But during the course of the 1960s and 70s, a series of experiments in northern California helped solve both problems. These experiments yielded breakthrough innovations like the graphical user interface, the mouse and the microprocessor. Computers became smaller, more usable and more interactive, reducing *Silicon Valley*’s reliance on a few large customers while giving digital technology a friendlier face.

The pioneers who led this transformation believed they were making computing more human. They drew deeply from the counterculture of the period, and its fixation on developing “human” modes of living. They wanted their machines to be “extensions of man”, in the words of Marshall McLuhan, and to unlock “human potential” rather than repress it. At the centre of this ecosystem of hobbyists, hackers, hippies and professional engineers was Stewart Brand, famed entrepreneur of the counterculture and founder of the *Whole Earth Catalog*¹⁰.

¹⁰ <https://www.theguardian.com/books/2013/may/05/stewart-brand-whole-earth-catalog>



Apple founder Steve Jobs 'got the notion of tools for human use'. Photograph: Ted Thai/Polaris / eyevine

In a famous 1972 article for *Rolling Stone*, Brand called for a new model of computing that “served human interest, not machine”.

Brand’s disciples answered this call by developing the technical innovations that transformed computers into the form we recognise today. They also promoted a new way of thinking about computers – not as impersonal slabs of machinery, but as tools for unleashing “human potential”.

No single figure contributed more to this transformation of computing than Steve Jobs, who was a fan of Brand and a reader of the *Whole Earth Catalog*.

Jobs fulfilled Brand’s vision on a global scale, launching the mass personal computing era with the *Macintosh* in the mid-80s, and the mass smartphone era with the *iPhone* two decades later. Brand later acknowledged that Jobs embodied the *Whole Earth Catalog* ethos.

“He got the notion of tools for human use,” Brand told Jobs’ biographer, Walter Isaacson.

Building those “tools for human use” turned out to be great for business. The impulse to humanise computing enabled *Silicon Valley* to enter every crevice of our lives. From phones to tablets to laptops, we are surrounded by devices that have fulfilled the demands of the counterculture for digital connectivity, interactivity and self-expression. Your *iPhone* responds to the slightest touch; you can look at photos of anyone you have ever known, and broadcast anything you want to all of them, at any moment.

In short, the effort to humanise computing produced the very situation that the tech humanists now consider dehumanising: a wilderness of screens where digital devices chase every last instant of our attention. To guide us out of that wilderness, tech humanists say we need more humanising. They believe we can use better design to make technology serve human nature rather than exploit and corrupt it. But this idea is drawn from the same tradition that created the world that tech humanists believe is distracting and damaging us.

Tech humanists say they want to align humanity and technology. But this project is based on a deep misunderstanding of the relationship between humanity and technology: namely, the fantasy that these two entities could ever exist in separation.

It is difficult to imagine human beings without technology. The story of our species began when we began to make tools. *Homo habilis*, the first members of our genus, left sharpened stones scattered across Africa. Their successors hit rocks against each other to make sparks, and thus fire. With fire you could cook meat and clear land for planting; with ash you could fertilise the soil; with smoke you could make signals. In flickering light, our ancestors painted animals on cave walls. The ancient tragedian Aeschylus recalled this era mythically: Prometheus, in stealing fire from the gods, “founded all the arts of men.”

All of which is to say: humanity and technology are not only entangled, they constantly change together. This is not just a metaphor. Recent research¹¹ suggests that the human hand evolved to manipulate the stone tools that our ancestors used. The evolutionary scientist Mary Marzke shows

¹¹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4027422/>

that we developed “a unique pattern of muscle architecture and joint surface form and functions” for this purpose.

The ways our bodies and brains change in conjunction with the tools we make have long inspired anxieties that “we” are losing some essential qualities. For millennia, people have feared that new media were eroding the very powers that they promised to extend. In *The Phaedrus*, Socrates warned that writing on wax tablets would make people forgetful. If you could jot something down, you wouldn’t have to remember it. In the late middle ages, as a culture of copying manuscripts gave way to printed books, teachers warned that pupils would become careless, since they no longer had to transcribe what their teachers said.

Yet as we lose certain capacities, we gain new ones. People who used to navigate the seas by following stars can now program computers to steer container ships from afar. Your grandmother probably has better handwriting than you do – but you probably type faster.

The nature of human nature is that it changes. It cannot, therefore, serve as a stable basis for evaluating the impact of technology. Yet the assumption that it *doesn’t* change serves a useful purpose. Treating human nature as something static, pure and essential elevates the speaker into a position of power. Claiming to tell us who we are, they tell us how we should be.

Intentionally or not, this is what tech humanists are doing when they talk about technology as threatening human nature – as if human nature had stayed the same from the paleolithic era until the rollout of the *iPhone*. Holding humanity and technology separate clears the way for a small group of humans to determine the proper alignment between them. And while the tech humanists may believe they are acting in the common good, they themselves acknowledge they are doing so from above, as elites.

“We have a moral responsibility to steer people’s thoughts ethically,” Tristan Harris has declared.

Harris and his fellow tech humanists also frequently invoke the language of public health. *The Center for Humane Technology’s* Roger McNamee has gone so far as to call public health “the root of the whole thing”, and Harris has compared¹² using *Snapchat* to smoking cigarettes. The public-health framing casts the tech humanists in a paternalistic role. Resolving a public health crisis requires public health expertise. It also precludes the possibility of democratic debate. You don’t put the question of how to treat a disease up for a vote – you call a doctor.

This paternalism produces a central irony of tech humanism: the language that they use to describe users is often dehumanising.

“Facebook appeals to your lizard brain – primarily fear and anger,” says McNamee.

Harris echoes this sentiment:

“Imagine you had an input cable,” he has said. “You’re trying to jack it into a human being. Do you want to jack it into their reptilian brain, or do you want to jack it into their more reflective self?”

¹² <https://www.vox.com/technology/2018/2/19/17020310/tristan-harris-facebook-twitter-humane-tech-time>

The *Center for Humane Technology*'s website offers tips on how to build a more reflective and less reptilian relationship to your smartphone: "going greyscale"¹³ by setting your screen to black-and-white, turning off app notifications and charging your device outside your bedroom. It has also announced two major initiatives: a national campaign to raise awareness about technology's harmful effects on young people's "digital health and well-being"; and a "Ledger of Harms" – a website that will compile information about the health effects of different technologies in order to guide engineers in building "healthier" products.

These initiatives may help some people reduce their smartphone use – a reasonable personal goal. But there are some humans who may not share this goal, and there need not be anything unhealthy about that. Many people rely on the internet for solace and solidarity, especially those who feel marginalised. The kid with autism may stare at his screen when surrounded by people, because it lets him tolerate being surrounded by people. For him, constant use of technology may not be destructive at all, but in fact life-saving.

Pathologising certain potentially beneficial behaviours as "sick" isn't the only problem with the *Center for Humane Technology*'s proposals. They also remain confined to the personal level, aiming to redesign how the individual user interacts with technology rather than tackling the industry's structural failures. Tech humanism fails to address the root cause of the tech backlash: the fact that a small handful of corporations own our digital lives and strip-mine them for profit. This is a fundamentally political and collective issue. But by framing the problem in terms of health and humanity, and the solution in terms of design, the tech humanists personalise and depoliticise it.

This may be why their approach is so appealing to the tech industry. There is no reason to doubt the good intentions of tech humanists, who may genuinely want to address the problems fuelling the tech backlash. But they are handing the firms that caused those problems a valuable weapon. Far from challenging *Silicon Valley*, tech humanism offers *Silicon Valley* a useful way to pacify public concerns without surrendering any of its enormous wealth and power. By channelling popular anger at *Big Tech* into concerns about health and humanity, tech humanism gives corporate giants such as *Facebook* a way to avoid real democratic control. In a moment of danger, it may even help them protect their profits.

One can easily imagine a version of *Facebook* that embraces the principles of tech humanism while remaining a profitable and powerful monopoly. In fact, these principles could make *Facebook* even more profitable and powerful, by opening up new business opportunities. That seems to be exactly what *Facebook* has planned.

When Zuckerberg announced that *Facebook* would prioritise "time well spent" over total time spent, it came a couple weeks before the company released their 2017 Q4 earnings. These reported that total time spent on the platform had dropped by around 5%, or about 50m hours per day. But, Zuckerberg said¹⁴, this was by design: in particular, it was in response to tweaks to the *News Feed* that prioritised "meaningful" interactions with "friends" rather than consuming "public content" like video and news. This would ensure that

"Facebook isn't just fun, but also good for people's well-being".

¹³ <https://www.theguardian.com/technology/2017/jun/20/turning-smartphone-greyscale-attention-distraction-colour>

¹⁴ <https://www.facebook.com/zuck/posts/10104501954164561>

Zuckerberg said he expected those changes would continue to decrease total time spent – but

“the time you do spend on Facebook will be more valuable”.

This may describe what users find valuable – but it also refers to what Facebook finds valuable. In a recent interview, he said¹⁵:

“Over the long term, even if time spent goes down, if people are spending more time on Facebook actually building relationships with people they care about, then that’s going to build a stronger community and build a stronger business, regardless of what Wall Street thinks about it in the near term.”

Sheryl Sandberg has also stressed that the shift will create *“more monetisation opportunities”*. How? Everyone knows data is the lifeblood of Facebook – but not all data is created equal. One of the most valuable sources of data to Facebook is used to inform a metric called *“coefficient”*. This measures the strength of a connection between two users – Zuckerberg once called it *“an index for each relationship”*. Facebook records every interaction you have with an other user – from liking a friend’s post or viewing their profile, to sending them a message. These activities provide Facebook with a sense of how close you are to an other person, and different activities are weighted differently. Messaging, for instance, is considered the strongest signal. It’s reasonable to assume that you’re closer to somebody you exchange messages with than somebody whose post you once liked.

Why is coefficient so valuable? Because Facebook uses it to create a Facebook they think you will like: it guides algorithmic decisions about what content you see and the order in which you see it. It also helps improve ad targeting, by showing you ads for things liked by friends with whom you often interact. Advertisers can target the closest friends of the users who already like a product, on the assumption that close friends tend to like the same things.



Facebook CEO Mark Zuckerberg testifies before the US Senate last month. Photograph: Jim Watson/AFP/Getty Images

So when Zuckerberg talks about wanting to increase *“meaningful”* interactions and building relationships, he is not succumbing to pressure to take better care of his users. Rather, emphasising time well spent means creating a Facebook that prioritises data-rich personal interactions that Facebook can use to make a more engaging platform. Rather than spending a lot of time doing things that Facebook doesn’t find valuable – such as watching viral videos – you can spend a bit less time, but spend it doing things that Facebook does find valuable.

In other words, *“time well spent”* means Facebook can monetise more efficiently. It can prioritise the intensity of data extraction over its extensiveness. This is a wise business move, disguised as a concession to critics. Shifting to this model not only sidesteps concerns about tech addiction – it also acknowledges certain basic limits to Facebook’s current growth model. There are only so many hours in the day. Facebook can’t keep prioritising total time spent – it has to extract more value from less time.

¹⁵ <https://www.vox.com/2018/4/2/17185052/mark-zuckerberg-facebook-interview-fake-news-bots-cambridge>

In many ways, this process recalls an earlier stage in the evolution of capitalism. In the 19th century, factory owners in England discovered they could only make so much money by extending the length of the working day. At some point, workers would die of exhaustion, or they would revolt, or they would push parliament to pass laws that limited their working hours. So industrialists had to find ways to make the time of the worker more valuable – to extract more money from each moment rather than adding more moments. They did this by making industrial production more efficient: developing new technologies and techniques that squeezed more value out of the worker and stretched that value further than ever before.

A similar situation confronts *Facebook* today. They have to make the attention of the user more valuable – and the language and concepts of tech humanism can help them do it. So far, it seems to be working. Despite the reported drop in total time spent, *Facebook* recently announced huge 2018 Q1 earnings of \$11.97bn (£8.7bn), smashing *Wall Street* estimates by nearly \$600m.

Today's tech humanists come from a tradition with deep roots in *Silicon Valley*. Like their predecessors, they believe that technology and humanity are distinct, but can be harmonised. This belief guided the generations who built the “humanised” machines that became the basis for the industry's enormous power. Today it may provide *Silicon Valley* with a way to protect that power from a growing public backlash – and even deepen it by uncovering new opportunities for profit-making.

Fortunately, there is another way of thinking about how to live with technology – one that is both truer to the history of our species and useful for building a more democratic future. This tradition does not address “humanity” in the abstract, but as distinct human beings, whose capacities are shaped by the tools they use. It sees us as hybrids of animal and machine – as “cyborgs”, to quote the biologist and philosopher of science Donna Haraway.

To say that we're all cyborgs is not to say that all technologies are good for us, or that we should embrace every new invention. But it does suggest that living well with technology can't be a matter of making technology more “human”. This goal isn't just impossible – it's also dangerous, because it puts us at the mercy of experts who tell us how to be human. It cedes control of our technological future to those who believe they know what's best for us because they understand the essential truths about our species.

The cyborg way of thinking, by contrast, tells us that our species is essentially technological. We change as we change our tools, and our tools change us. But even though our continuous co-evolution with our machines is inevitable, the way it unfolds is not. Rather, it is determined by who owns and runs those machines. It is a question of power.

Today, that power is wielded by corporations, which own our technology and run it for profit. The various scandals that have stoked the tech backlash all share a single source. Surveillance, fake news and the miserable working conditions¹⁶ in *Amazon's* warehouses are profitable. If they were not, they would not exist. *They are symptoms of a profound democratic deficit inflicted by a system that prioritises the wealth of the few over the needs and desires of the many.*

There is an alternative. If being technological is a feature of being human, then the power to shape how we live with technology should be a fundamental human right. The decisions that most affect our technological lives are far too important to be left to Mark Zuckerberg, rich investors or a handful of “humane designers”. They should be made by everyone, together.

¹⁶ <https://www.theguardian.com/technology/2016/dec/11/amazon-accused-of-intolerable-conditions-at-scottish-warehouse>

Rather than trying to humanise technology, then, we should be trying to democratise it. We should be demanding that society as a whole gets to decide how we live with technology – rather than the small group of people who have captured society’s wealth.

What does this mean in practice? First, it requires limiting and eroding *Silicon Valley*’s power. Antitrust laws and tax policy offer useful ways to claw back the fortunes *Big Tech* has built on common resources. After all, *Silicon Valley* wouldn’t exist without billions of dollars of public funding, not to mention the vast quantities of information that we all provide for free. *Facebook*’s market capitalisation is \$500bn with 2.2 billion users – do the math to estimate how much the time you spend on *Facebook* is worth. You could apply the same logic to *Google*. There is no escape: whether or not you have an account, both platforms track you¹⁷ around the internet.

In addition to taxing and shrinking tech firms, democratic governments should be making rules about how those firms are allowed to behave – rules that restrict how they can collect and use our personal data, for instance, like the *General Data Protection Regulation* coming into effect in the European Union later this month. But more robust regulation of *Silicon Valley* isn’t enough. We also need to pry the ownership of our digital infrastructure away from private firms.

This means developing publicly and co-operatively owned alternatives that empower workers, users and citizens to determine how they are run. These democratic digital structures can focus on serving personal and social needs rather than piling up profits for investors. One inspiring example is municipal broadband: a successful experiment¹⁸ in Chattanooga, Tennessee, has shown that publicly owned internet service providers can supply better service at lower cost than private firms. Other models of digital democracy might include a worker-owned *Uber*, a user-owned *Facebook* or a socially owned “*smart city*” of the kind being developed in Barcelona¹⁹. Alternatively, we might demand that tech firms pay for the privilege of extracting our data, so that we can collectively benefit from a resource we collectively create.

More experimentation is needed, but democracy should be our guiding principle. The stakes are high. Never before have so many people been thinking about the problems produced by the tech industry and how to solve them. The tech backlash is an enormous opportunity – and one that may not come again for a long time.

The old techno-utopianism is crumbling. What will replace it? *Silicon Valley* says it wants to make the world a better place.

Fulfilling this promise may require a new kind of disruption.

¹⁷ <https://www.theverge.com/2018/4/11/17225482/facebook-shadow-profiles-zuckerberg-congress-data-privacy>

¹⁸ <https://www.thenation.com/article/the-new-sewer-socialists-are-building-an-equitable-internet/>

¹⁹ <https://www.theguardian.com/science/political-science/2018/apr/18/smart-cities-need-thick-data-not-big-data>