Postdigital

Thomas Ramge

In May 2013, Napster founder and Facebook advisor Sean Parker commissioned the construction of a dreamlike, kitschy medieval backdrop among the redwoods of northern California on a former campground not far from an idyllic Pacific bay. It boasted a fake castle ruin, an artificial pond with a bridge and waterfall, a ten foot Celtic cross, an altar made from fallen Roman columns and a forged iron gate bearing his initials and those of his future wife, the singer Alexandra Lenas. On June 3, Parker meant it to be the site of the most amazing wedding that northern California had ever seen. In a lengthy and heavily illustrated story, *Vanity Fair* documented how the "charismatic" tech billionaire and his "beautiful" bride made good on their promise of a party to remember.

The ultra-wealthy elite of Silicon Valley celebrated along with superstars of show business, such as Emma Watson and Sting, who sang a few of the newlyweds' favorite songs. Prominent politicians were also in attendance, including the governor of California and then Democratic senator Kamala Harris. The designer who had worked on the *Lord of the Rings* film trilogy designed celebratory costumes for all 364 guests, including the less prominent among them.

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The wedding's planner, Ken Fulk, described the giant party as "Citizen Kane meets Gatsby." As they exited the party, the guests received a leather-bound volume containing the newlyweds' love story as a souvenir. But just a few days later, the extravagant fantasy wedding with a *Game of Thrones* look turned into a real-world PR disaster.

While building their fairy tale wedding backdrop, the Parkers and their contractors had violated environmental regulations, as the California Coastal Commission announced immediately after the big event. The internet billionaire, aged 33 at the time, quickly reached a mutual settlement with the authorities to pay a fine of around two million dollars that would go toward protecting the redwoods. But from then on, the glamorous wedding photos appeared not as illustrations for star-struck articles in society magazines about the lives of the rich and famous, but in Tweets and feature stories in the New York Times and Washington Post about the failings of capitalism and globalism and the ignorance, self-importance and double standards of Silicon Valley's tech elite. That the Parkers opened their wallets to the tune of two million dollars afterwards to correct their "planning mistakes," or that they reiterated how they had asked the wealthy wedding guests to donate to environmental projects instead of bringing gifts, didn't make things much better in the eyes of many critics. The attitude of moral correctness could rather be interpreted as additional proof that the digital start-up heroes were living in their own little green-tinted filter bubble.

Economist columnist Adrian Wooldridge saw the environmental disaster of the wedding bash as a turning point in public perception of the "plutocrats of cyberspace." Until then, the founders of Silicon Valley's tech start-ups had been seen as agents of progress, as the people who had made the internet a space for the free exchange of information, an engine for democracy and political emancipation, and a gateway to the physical and non-tangible goods of a self-empowering economy that matched the spirit of the Cluetrain Manifesto (Levine et al. 2001). Until the middle of the decade, bankers and executives of traditional corporations, especially oil companies, were unchallenged in their roles as the personified targets of anti-capitalist rage. In their protests against the richest one percent, the Occupy demonstrators in New York and various European cities had carved out an exception

for those who had provided them with the iPads, smartphones and digital platforms they used to organize their furor.

At the end of 2013, with the Parker wedding in mind, Wooldridge predicted: "The Silicon elite will cease to be regarded as geeks who happen to be filthy rich and become filthy rich people who happen to be geeks" (Wooldridge 2013). Wooldridge coined a term for the phenomenon, which continues to be thrown at the stinking rich nerds of Sunnyvale and has fundamentally changed the perspective on the social effects of Silicon Valley-style innovation: "techlash," a combination of "technology" and "backlash." In his article, the term primarily has a personal meaning and is directed against the people who created the digital tools that are changing the world. As if to confirm this thesis, Mr. and Mrs. Parker later reported in shock and disappointment that after the heated debate about their wedding, they had been spat at on the street, insulted by waiters in restaurants and flooded with hate mail on social media (Parker 2016). But at this point, the term "techlash" is no longer tied to a specific class of people in the USA. The backlash turned into a movement of its own. Once universally loved, the tech sector morphed into "Big Tech" – and thus into the fourth member of the bogeyman triumvirate formerly consisting of Big Oil, Big Finance and Big Pharma. Surveys show that Americans now trust the big tech companies even less than banks.

The movement to resist digitalization is expressing and organizing itself – where else? – primarily on the internet. It's led to a number of best-selling books, including Jaron Lanier's *Ten Arguments for Deleting Your Social Media Accounts Right Now* (2014), Shoshana Zuboff's *The Age of Surveillance Capitalism* (2019) and Roger McNamee's score-settling with Facebook – written by an early investor and mentor to Mark Zuckerberg – with the self-explanatory title *Zucked* (2019).

Major techlash figures often write and speak in the disappointed tones of people who had long believed that digital technology aided the progress of individuals and society and who had even experienced it themselves in many situations, but who could now see that the major tech companies and their digital platforms were scaling up the ills of the world in at least four areas.

Smartphone Addiction

Digital applications are programmed to maximize how much time we spend with them, how often we click on them, how regularly we return to them and how much data we disclose to them. All this helps the providers of the applications to seduce us with carefully-dosed dopamine kicks into wasting even more time with them. For our tween or teenage children, every additional hour of screen time seems like the greatest possible reward. No offer to play soccer outside with them instead or to visit the natural history museum together can pull them away from the digital maelstrom. Not that we adults are any better. Even we can't help prodding the touchscreen as soon as a new WhatsApp message pings. We know that we're giving up a little piece of privacy with each post on Instagram or LinkedIn – and yet we still do it.

Savvy techlash folk, of course, realize that smartphone addiction involves the individual responsibility of each user. But app providers' deceitful interpretation of "user oriented," techlashers complain, is focused not on maximizing the actual benefit to the user, but on mega-monetizing the user's time or data. As a rule, both happen at once, which the digital contrarian Jaron Lanier (2014) summarized with the oft-quoted formula: Users are not the online companies' customers, but rather their product. The real customers are the advertisers who buy access to the users.

Even if the new bankers and oil firm executives of data capitalism were to use their data-based power exclusively for legal advertising, the terrorist-like demand for our attention via our digital devices is their responsibility.

Digitalization aggravates inequality

Today, people hardly think of Google CEOs as nerds who want to make information available to everyone in the world. They are instead much more likely to be seen as the top dogs of a monopoly that pays almost nothing in taxes anywhere in the world. The nice nerds with money have turned into ultra-wealthy trolls, even when they're not wearing Lord of the Rings costumes.

In the mid 1990s, the internet had promised a new economy with more opportunities for everyone: a space of limitless possibilities with greater equality of opportunity. The internet made the world flat,

as Thomas Friedman (2005) put it. Everyone could play on a level playing field without an unfair cleavage between north and south.

But the current perception is that the network effects of digital platform capitalism are making the super-rich even richer. A tiny tech-enabled elite is securing a big piece of the pie for itself, while the rest cling in terror to their positions in the middle class – that is, unless they're already delivering packages for Amazon or ferrying passengers from the better neighborhoods for Uber. An image frequently used by techlash spokespeople to describe these socio-economic changes is the "return of the servant class." The job market is dividing into lovely jobs and lousy jobs. The winners are seeing their paychecks regularly increase, while the losers are hauling Amazon packages to the beautifully restored homes where the winners live.

Social media harms democracy

The Arab Spring of the early 2010s seemed at last to be fulfilling one of the central promises of digitalization: Democratic discourse could finally be organized openly by using the internet and digital media. An open Net would lead to an open society (in the definition of Karl Popper) in which "human rationality" would work for the common good. Just ten years after demonstrators in Tunisia, Egypt and Yemen had rid themselves of their autocratic leaders with the assistance of Twitter, Facebook and YouTube, the successors of those autocratic leaders and dictators throughout the world are using digital technology for surveillance, oppression and manipulation. China under Xi Jinping is well on its way toward reinventing dictatorship by digital means and creating the almost perfect surveillance state.

In the meantime, social media are infecting democratic discourse in the Western world like a computer virus. Propaganda is their viral load. The filter bubbles and algorithms that give radical messages a worldwide stage, combined with political manipulation by foreign and domestic troll farms, have at least aided the rise of populists. Many prominent techlash figures are convinced: Without social media, there would be no Trump, no Brexit and no re-emergence of the German far right.

Digital systems accelerate climate change

Thanks to digital systems, we can finally live in a green world – right? That too was one of the great hopes for improving the world shared

for years by tech entrepreneurs and environmentalists alike. In detail, that meant smart electricity networks would make the switch to renewable energy possible. Thanks to smart transportation, we would combine environmentally friendly modes of transport, reduce traffic and need fewer cars overall. Through telecommuting and video conferences, we would reduce rush-hour traffic and business travel. Big Data would plan logistics so intelligently that no truck would ever pull an empty trailer (today it's around a third of all those on the road). At the same time, we would dematerialize physical goods like letters, CDs and DVDs, sparing the environment and conserving scarce resources. It doesn't take a drive to Blockbuster to binge on Netflix. And the digital thermostats in our smart homes would turn down the heat at just the right time. That was the dream, at least.

For each of these promises, well-functioning examples exist today. But the further digitalization progresses, the more obvious the rebound effects are becoming. The British economist and philosopher William Stanley Jevons observed this process as early as 1865, at the peak of the Industrial Revolution in England. His rebound thesis, which has since been empirically confirmed multiple times, is that in the long run energy-efficient processes lead to higher energy use because, by lowering costs, they aid the overall spread of technology (1865). The original Jevons paradox was concerned specifically with coal as a fuel used in smelting furnaces. Today, environmental economists can observe that a single low-energy light bulb may save electricity, but people suddenly have many more light bulbs, which in turn require a large amount of energy to produce. They see that car sharing has taken many riders off the subway, but only a few have given up their private cars entirely. And they see how electric scooters with a sharing app are marketed as environmentally friendly "micro-e-mobility solutions," but don't replace short car trips. Instead, they make it less likely that people will choose the most environmentally friendly of all forms of mobility: walking and riding a bicycle. By applying intelligent measures and with some good will, people can counteract rebound effects, at least theoretically, as the environmental economist Tilman Santarius shows in his book *Smart Green World?* (2018). A smart home can optimize energy usage – but not the inhabitants' comfort level.

Viewed from above, digitalization may have its own rebound paradox, a contradiction from which there is no exit. Economically

and culturally, the successful models of the platform economy are entirely designed for quantitative growth. They stimulate consumption. Sufficiency, or limiting oneself to what is most essential, is incompatible with Silicon Valley-style turbo-capitalist digitalization. In the same way, sufficiency and China's brutal state capitalist approach to digitalization are mutually exclusive.

There's an old rule of thumb among people who study trends: Every trend has a counter-trend. The only surprising thing about techlash is how late it got started. That's the view of Matthias Horx, Germany's top trend researcher, and he's not alone. A few years ago, Horx had to put up with public and online mockery by the bucketload whenever he questioned whether digitalization was leading to anywhere near as much progress as the ubiquitous tech evangelists claimed (2017). Today, when he writes or speaks critically of technology, the feedback he gets is often along the lines of, "Finally someone's pointing out that it doesn't work" (2019).

In German-speaking countries, Matthias Horx revived the concept of the postdigital. The term had first appeared in the mid-1990s in discussions of the aesthetics of electronic music and media art. In 1998, just as the commercial internet was experiencing its first boom, the computer scientist, co-founder of the MIT Media Lab, venture capitalist and organizer of the "One Laptop per Child" initiative, Nicholas Negroponte, proclaimed in his influential *Wired* (1998) column: "The digital revolution is over." What Negroponte meant by that was, of course, not that computers and digital systems would no longer play any role in our lives. He was instead saying that we were already taking computers for granted so thoroughly that we would only notice if they weren't there, and we would have to relearn how to sensibly incorporate them into our everyday lives. Not long after and in a similar vein, the Italian philosopher Giorgio Agamben (2005) elevated "postdigital thinking" to a new paradigm for understanding the positive and negative consequences of life with computers. Agamben – who referred to digital technology as "welcoming and scary prosthetics" – proposed that the new paradigm would make it possible to examine the topic to a level of detail that the superficiality of digital-technical faith in progress had so far prevented. There was minimal response to Agamben's proposal.

Techlash – and the increasingly obvious rebound effects of digital technology that led to it – will be the starting point of a new

postdigital discussion. A new discussion of the postdigital also requires a new perspective on the digital. We have to move beyond the quasi-religion of digitalism, the transfiguration of digital technology into a solution for every situation, and place digitalization in a radically new paradigm of costs and benefits. We have to learn to use digital technology in general, and artificial intelligence in particular, *sovereignly*: that is, self-reliantly, naturally and calmly. But above all, we need to learn *not* to use digital technology when it doesn't benefit us.

The essayist Wolf Lotter understands "postdigital" not as the end of digitalization but rather as the end of the myth of digitalization. In the postdigital age after techlash, people are going to develop a radically pragmatic attitude toward all things digital. People will use digital systems when they make life easier. When they don't, they're out. And, as in postmodernism, new syntheses become possible at higher levels because (among other things) we have finally learned to distinguish between those "welcoming and scary prosthetics," as described by Giorgio Agamben (2005).

Postdigital human beings will understand that their brains can't deal with the endless stimuli smartphones inflict on them. As a consequence, they will have to learn the cultural technique of mental autonomy. The mindfulness movement could be one of the most important heralds of this development. We can counteract digital exhaustion, as described by Markus Albers (2017), if we have sufficient analogue recovery phases. A postdigital society won't discuss politics online like a primitive one that hasn't yet discovered techniques for moderating conversations. Or in other words, postdigital discussions will have nothing at all to do with the principle governing social media today, according to which those who yell loudest find the largest audience, while a sober appraisal can only hope that the trolls on either side shoot themselves.

At the same time, in the postdigital age, the digital will become completely trivial. Nicholas Negroponte (1998) opened his prophetic column about the end of the digital age with a sly reference to the famous scene in *The Graduate* where Mr. McGuire gives avuncular advice to the young protagonist, Benjamin Braddock: "Just one word: Plastics!" In the postdigital age, digital will become the epitome of triviality that "plastics!" was in the early postindustrial age.

But in concrete terms, what would a postdigital world look like in which people – both individually and as a society – used digital technologies sovereignly? With respect to the four primary areas of the techlash critique, a scenario for the future is emerging:

- We'll only reach for our smartphones when there's a reason and not because each new reflexive use creates new reasons for the next ritualistic unlocking of the home screen.

- Companies will no longer digitalize their production, internal processes and communications because digitalization is the first commandment of management at the moment. Instead, they will rigorously test each step in the digitalization process against the most important criterion of value creation: What would this change *really* add to the bottom line? Sham innovations that in truth only complicate things – essential things like production, internal processes and communications – will be eliminated. Intelligent regulation will ensure that competition returns to digital markets and the superprofitable superstar firms will finally pay their fair share of taxes. That would help pay for the public infrastructure that the digital superstars also use in their highly profitable business models. If necessary, some essential digital services would be regulated much like water companies, natural gas suppliers and other basic utilities are today. At least the left wing of the Democratic Party in the US is having similar thoughts, as exemplified by Elizabeth Warren and Bernie Sanders.

- Democratic discourse needs moderation online and offline. The value of opinion in discussion is significantly lower than commonly supposed by those who are constantly espousing their own. Never fear, there will continue to be unmoderated discussion forums. PewDiePie will still have unfettered opportunity to riff on social topics (in between game play videos) on YouTube. But in the postdigital age, essential political debates will take place on discussion platforms where the discourse is serious, fact-based and nuanced, using real names and with pauses built in for reflection instead of a

mad rush to respond. The fact check would have to be an inherent and accepted part of this culture of digital discussion. Truth would then be negotiated via some kind of Super-Wikipedia. Even the powerful must also express themselves on these platforms instead of through media rooted in visceral emotion like Twitter, or media designed for aesthetic self-promotion like Instagram. Perhaps software and platforms such as "Liquid Democracy" may come into use to enable new forms of direct, grass-roots decision making, especially at the local level. In the meantime, government and public administration will have learned to improve through digital technology.

- Technology is never good or bad. It depends on what we use it for. This statement, constantly repeated by tech-fixated idealists, is on the one hand naive. Technology is usually developed for a specific purpose in a socio-technical context. It's more suitable for this purpose than for others, and therefore it's not neutral. On the other hand, it's of course still true: You can use machine learning to promote the sale of a new digital device with a dreadful environmental impact. Amazon bred its recommendation algorithms with just this kind of value-maximizing function. By using similar systems that learn from more wholistic data sets, however, supply and demand could also be better balanced in decentralized energy networks.

In a green postdigital world, the fight against climate change will be a pressing goal, and perhaps the most important goal of new technological development. Perhaps in the fight against global warming, digitalization might even gain a second chance to radically improve the world: with decentralized energy networks, energy-efficient autonomous vehicles or a digitally controlled cradle-to-cradle (circular) economy. New green technologies might not only delay climate change. There will be an increasing importance for digitally supported innovations that promote resilience – that is, they will make it easier for people to deal with the actual consequences of climate change.

The future can't be predicted, but it can be created. What's stopping us from embracing a postdigital future with a radical paradigm

for evaluating technology's costs and benefits? Or we could formulate the question positively: What would we need to make this vision of a postdigital future a reality? Gesche Joost, a scholar of design, Germany's former Internet Ambassador and a member of SAP's board of directors, answers the question with two words: "digital sovereignty." But Joost also wishes that critiques of technology were more constructive. I share this view.

No matter how attractive or even justified the ideas of techlash may be, the perpetual demands for absolute data protection and absolute minimization of data use are as wearying as an endless wait on hold for the next available agent, and as unproductive. The answer to techlash, says Joost, can't be for people to withdraw into a technological backwater. Constructive criticism of technology, on the other hand, will help us regain our digital sovereignty. This can only succeed if we develop digital technology that corresponds to our own desires and values, improve our ability to use it through digital education and finally turn the concept of a common digital market for like-minded countries into economic reality. More specifically, this means:

1. Areas of the Western world that have not invested enough in their own technological development, Europe in particular, need a massive and coordinated effort to turn things around. In the discussion of 5G cellphone networks and the potential for Chinese espionage or even sabotage by Huawei, an urgent question has received far too little attention: Why are there no European firms able to compete with Huawei on price and quality?

2. Digital education needs a kickstart, beginning with elementary school. This includes data science and coding and understanding social media and the platform economy. The concepts and materials used for teaching these topics have been tested and proven to be successful, but unfortunately are rarely used in public schools. You're more likely to find them used in private or non-profit initiatives such as those of the Open Knowledge Foundation.

3. The third major area of action involves promoting innovation and regulation of digital markets. An important element of this is a consistent data policy. As described in the second section, if superstar firms construct data monopolies, then the data needs to be made open. But that's only the first important step. Open technical standards, if necessary enforced by law, have the same aim. Creating massive policy incentives for voluntary sharing of data, data cooperation and cross-sector data pools need to be on the agendas of national legislatures and regulators. And, of course, digitalization's biggest winners need to pay their corresponding share of taxes, whether in the form of a digital tax using the French model or in the form of a minimum global tax based on international agreements, as the German Foreign Ministry has proposed.

All of that is not just desirable, but the prerequisite for bringing the rebound effects of digitalization under control in the postdigital age. In writing this book, what surprised me most was how easily a self-consistent and emotionally powerful dystopian scenario can be formulated using the AI technology now available. From the present perspective, the alternative concept of a successful future with AI is much more difficult to formulate. Because the question always arises: Would we really want to let such a powerful digital companion like myAI so deep into our lives? Even if we knew that myAI would promote our interests alone, according to the best available data and its internal programming, and not the interests of anyone else?

The conflict between progress and regress will remain a dominant pattern of digital transformation, even if the next 20 years of technical change are more human focused than the last two decades of the tech tsunami spilling out of Silicon Valley.

Science, politics and journalism have at times identified the rebound effects of digitalization in general and of artificial intelligence in particular, but have not yet found a sensible overarching framework for analyzing them. In exploring the technical possibilities of machine-assisted decision making and the automation of decisions, we systematically underestimate our desire for autonomy of choice. In a specific situation, AI assistants have the ability to lull us with the sweet anesthetic of convenience. Artificial intelligence and the

clever assistants it powers will encroach on us even if – or precisely because – they only have good intentions for us.

The only remedy is postdigital sovereignty. One of the most important skills of those who are digitally sovereign will be the ability to decide when to step back from the ubiquitous power of smart computers. In a specific situation, we will be able to assess when the technical expertise of these data-rich expert idiots benefits us – and when it doesn't. Once we've gained this skill, we'll be able to overcome the techno-pessimism underlying the current debate about technology. In our present state of being digitally conflicted, we quickly become accustomed to the benefits of digital systems and come to take them for granted – and at the same time, we encounter every potential risk with both outrage and paralyzing fear. The international techlash wave (which, perhaps surprisingly for many Europeans, is primarily led by American critics at present) might gain a cathartic function in the further development of digital systems in the 2020s. We need to identify technology's risks and rebound effects with healthy skepticism in order to unlock its progressive potential in the long term. What we need is a postdigital synthesis of digital innovation and critique of technology. Only then will we be able to use technology to work toward solving the great challenges of our time.

Intelligent machines will help us if we use them intelligently. If that's to happen, we have to make artificial intelligence smarter without letting it take control.

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