# Valley R6 Neg vs Cardinal Gibbons RS

# 1NC

### 1

#### Interp and Violation: The affirmative must only defend that member nations of the WTO ought to reduce intellectual property protections for medicines and may only garner offense from the hypothetical implementation of the plan – they don’t.

#### "Resolved" requires a policy.

Merriam Webster '18 (Merriam Webster; 2018 Edition; Online dictionary and legal resource; Merriam Webster, "resolve," <https://www.merriam-webster.com/dictionary/resolve;> RP)  
: a legal or official determination especially: a legislative declaration

#### Member nations of the WTO are the 164 countries

https://www.wto.org/english/thewto\_e/whatis\_e/tif\_e/org6\_e.htm

#### Medicines prevent, diagnose, or treat disease and injury

**MRS 20** [(MAINE REVENUE SERVICE SALES, FUEL & SPECIAL TAX DIVISION) “A REFERENCE GUIDE TO THE SALES AND USE TAX LAW” <https://www.maine.gov/revenue/sites/maine.gov.revenue/files/inline-files/Reference%20Guide%202020.pdf> December 2020] SS

[Medicines](https://www.lawinsider.com/dictionary/medicines) means antibiotics, analgesics, antipyretics, stimulants, sedatives, antitoxins, anesthetics, antipruritics, hormones, antihistamines, certain “dermal fillers” (such as BoTox®), injectable contrast agents, vitamins, oxygen, vaccines and other substances that are used in the prevention, diagnosis or treatment of disease or injury and that either (1) require a prescription in order to be purchased or administered to the retail consumer or patient; or (2) are sold in packaging.

#### Intellectual property includes four things

Brewer 19 [(Trevor, advises clients on business structuring and sale transactions, regulatory compliance, third-party contracts, liability protection and general matters facing small business owners. His focus extends beyond legal advice and includes business strategy and wealth preservation.) “WHAT ARE THE FOUR BASIC TYPES OF INTELLECTUAL PROPERTY RIGHTS?” Brewer Long, 5/16/19. <https://brewerlong.com/information/business-law/four-types-of-intellectual-property/>] RR

There are four types of intellectual property rights and protections (although multiple types of intellectual property itself). Securing the correct protection for your property is important, which is why consulting with a lawyer is a must. The four categories of intellectual property protections include:

TRADE SECRETS

Trade secrets refer to specific, private information that is important to a business because it gives the business a competitive advantage in its marketplace. If a trade secret is acquired by another company, it could harm the original holder.

Examples of trade secrets include recipes for certain foods and beverages (like Mrs. Fields’ cookies or Sprite), new inventions, software, processes, and even different marketing strategies.

When a person or business holds a trade secret protection, others cannot copy or steal the idea. In order to establish information as a “trade secret,” and to incur the legal protections associated with trade secrets, businesses must actively behave in a manner that demonstrates their desire to protect the information.

Trade secrets are protected without official registration; however, an owner of a trade secret whose rights are breached–i.e. someone steals their trade secret–may ask a court to ask against that individual and prevent them from using the trade secret.

PATENTS

As defined by the U.S. Patent and Trademark Office (USPTO), a patent is a type of limited-duration protection that can be used to protect inventions (or discoveries) that are new, non-obvious, and useful, such a new process, machine, article of manufacture, or composition of matter.

When a property owner holds a patent, others are prevented, under law, from offering for sale, making, or using the product.

COPYRIGHTS

Copyrights and patents are not the same things, although they are often confused. A copyright is a type of intellectual property protection that protects original works of authorship, which might include literary works, music, art, and more. Today, copyrights also protect computer software and architecture.

Copyright protections are automatic; once you create something, it is yours. However, if your rights under copyright protections are infringed and you wish to file a lawsuit, then registration of your copyright will be necessary.

TRADEMARKS

Finally, the fourth type of intellectual property protection is a trademark protection. Remember, patents are used to protect inventions and discoveries and copyrights are used to protect expressions of ideas and creations, like art and writing.

Trademarks, then, refer to phrases, words, or symbols that distinguish the source of a product or services of one party from another. For example, the Nike symbol–which nearly all could easily recognize and identify–is a type of trademark.

While patents and copyrights can expire, trademark rights come from the use of the trademark, and therefore can be held indefinitely. Like a copyright, registration of a trademark is not required, but registering can offer additional advantages.

#### Vote neg:

#### 1] Fairness – post facto topic adjustment structurally favors the aff by manipulating the balance of prep. They can specialize in 1 area of literature for 4 years which gives them a huge edge over people switching topics every 2 months and locks us into a predictable null set of monolithic criticisms that are susceptible to the perm. Fairness is an impact –

#### a] it’s an intrinsic good – debate is fundamentally a game and some level of competitive equity is necessary to sustain the activity which they’ve ceded validity to by participating,

#### b] probability – individual ballots can’t alter subjectivity even if long term clash over a season can, but they can rectify skews which means the only immediate impact to a ballot is fairness and deciding who wins,

#### c] it internal link turns every impact – a limited topic promotes in-depth research and engagement which is necessary to access all of their education

#### 2] Clash – argumentative testing along a stable tether and SSD are good – they force debaters to consider a controversial issue from multiple perspectives through nuanced 3rd and 4th level testing that only occurs alongside a stasis point for preparation. Non-T affs allow individuals to establish their own metrics for what they want to debate leading to ideological dogmatism – our argument is that the process of defending and answering proposals against a well-researched opponent is a benefit of engaging the topic regardless of the truth value of those proposals.

#### 3] TVA –

#### A] Biopiracy aff – ends the virtual class’s ability to impose their informational economy on other countries and solves their biod impacts – saying it doesn’t combat larger structures of cybernetics is a neg solvency argument

#### B] Data exclusivity affs or secondary patent affs – a core thesis of their aff is IPR bad and specific forms of IPR that allow for the consolidation of data into the virtual class are especially bad

#### Use competing interps – topicality is question of models of debate which they should have to proactively justify and we’ll win reasonability links to our offense.

#### They can’t weigh the case—lack of preround prep means their truth claims are untested which you should presume false—they’re also only winning case because we couldn’t engage with it

#### No impact turns—exclusions are inevitable because we only have 45 minutes so it’s best to draw those exclusions along reciprocal lines to ensure a role for the negative

No rvis –

win for being fair,

baiting

### 2

#### Interpretation: Debaters must disclose all constructive positions on with full cites and open source with highlighting on the 2020-21 NDCA LD wiki after the round in which they read them and before the next round they debate.

#### Violation – they don’t

A screenshot of a computer

Description automatically generated with medium confidence

#### 1] Debate resource inequities—you’ll say people will steal cards, but that’s good—it’s the only way to truly level the playing field for students such as novices in under-privileged programs who can’t bypass paywalled articles.

#### 2] Evidence ethics – open source is the only way to verify pre-round that cards aren’t miscut or highlighted or bracketed unethically. That’s a voter – maintaining ethical ev practices is key to being good academics and we should be able to verify you didn’t cheat.

#### They’ll say open sourcing 1 version is enough but that leaves no way to verify if they’ve read small changes in other rounds I need to be aware of, especially since there aren’t cites.

#### 3] Even if the docs are the same, that doesn’t solve because I don’t know they’re identical which skews pre round prep because I have to contact their previous opponents to check – independently exclusionary because newer debates don’t feel comfortable reaching out to randos

#### 4] Cites aren’t working isn’t an argument – they literally added cites entries which proves they can use them.

#### The only wiki error that would stop them is if they used a special character, but that’s solved by just reading the doc and removing the character.

#### Cites are independently good – they allow debaters to quickly understand broken positions and spend more time to generate a nuanced NC which produces better clash.

### 3

#### We endorse the entirety of the 1AC with the exception of their descriptions of data as a natural resource or being.

#### Here are some 1AC lines that prove competition – inserted aff highlightings:

Data seeks the safety of digital purity; firewalling itself in the hygienic spaces of closed data dumps. In other instances, data become aggressive – it turns on its human companion species,

data is a fully completed nihilist, infected with the ressentiment of the human species that it was so eager to replace, the spearhead of a purely technical will – drifting, oscillating, wiping away the horizon

the digital superhighway is a big real estate venture in cybernetic form

#### Data is not a natural resource or a sovereign malevolent entity, but a contingent result of various human-caused socio-technical practices. Their description de-politicizes data and removes human agency to re-direct data inequality, which turns the case.

Angelina Fisher and Thomas Streinz 21, Angelina Fisher is Adjunct Professor of Law and Director for Policy and Practice of Guarini Global Law & Tech at New York University School of Law, Thomas Streinz is Adjunct Professor of Law and Executive Director of Guarini Global Law & Tech at New York University School of Law, “Confronting Data Inequality,” Institute for International Law and Justice, New York University School of Law, International Law and Justice Working Papers, 2021, https://www.iilj.org/wp-content/uploads/2021/04/Fisher-Streinz-Confronting-Data-Inequality-IILJ-Working-Paper-2021\_1.pdf

A. Conceptualizing Data

The term “data” is ubiquitous. Its meaning, however, differs across fields and disciplines that seek to understand and articulate what data is, what is new or different about digital data, and how data is transforming social, political and economic dynamics.9 In popular discourse, the use of metaphors is common.10 Many analogize data to natural resources like oxygen, and of course, the by now proverbial oil.11

These metaphors often conceive of data as a natural kind, and as a resource that “exists in the wild,” can be extracted, processed, and consumed through means of industrial production — invoking physical modalities of pipes and hoses to process and move the resource smoothly across space — in order to make something visible, discoverable, traceable, observable, and ultimately calculable. These metaphors of nature operate to evoke images of data as existing a priori in the same way that water or air or mineral deposits exist. This imagery is consistent with the etymology of the word data, which derives from the Latin verb dare (to give): data as something that is given. 12 The givenness of data is thus analogized to the givenness of natural resources which can be extracted.

Data is also often said to flow. From a technical perspective digital data is being transmitted through light pulses or electrical signals, depending on the type of cable used, at the behest of humans and their machines. Yet, the imagery of fluidity suggests that in its state-of-nature, data moves smoothly and uninterrupted, without acknowledging anyone’s, or anything’s, agency in the process.13 Data from different sources is said to aggregate into lakes or pools, but when too much data accumulates so as to be unmanageable for the humans or machines who extract and process the resource, the narrative of torrents, floods and tsunamis of data shifts towards a need for control as data must be cleaned, refined, simplified, with “noise” eliminated to reveal its essence.14 Once its natural force has been curbed, data is finally ready for consumption or can be used to create even more data.

Data metaphors have implications for our analysis of legal and infrastructural dimensions of data inequality. As Cornelius Puschmann and Jean Burges explain, “technological metaphors are ‘never innocent’ and, when deployed as part of deliberate rhetorical strategies, [they] have the potential to profoundly shape cultural and social practices”.15 Indeed, the metaphors outlined here above made their way into economic and political discourses. The idea of data as a resource focuses attention on data as an object that can be commodified to generate further value.16 Geopolitical contests and transnational competition between businesses eager to realize data’s value propositions play out in debates around the “free flow” of data across borders, on the one hand, and the desire for “data sovereignty” on the other. Seeing data as a valuable resource has also meant that legal interventions have focused on questions such as: Who owns data? Who collects and processes data? How should data be shared and with whom? How should people be protected from uses and misuses of data? How should concentrations of data in the hands of certain commercial actors be regulated? As we will discuss in Part II, these approaches often miss dimensions of data inequality associated with control over the data infrastructures that constitute data.

Treating data as something akin to a natural resource has the effect of depoliticizing the processes by which data comes into existence in the first place. It not only removes human agency but also conceals the socio-technical practices, and the surrounding politics, through which phenomena are being converted into a set of computationally manipulable measurements.17 Speaking of data in scientific research, Sabina Leonelli observes that data “are the results of complex processes of interaction between researchers and the world, which typically happen with the help of interfaces such as observational techniques, registration and measurement devices, and the re-scaling and manipulation of objects of inquiry for the purposes of making them amenable to investigation.” 18 The same observation can be made with respect to the data that is “born digital” (created immediately in binary, hence digital, code), either purposefully or incidentally. 19 The decision to capture (or measure) a particular phenomenon, process, activity or environment is unequivocally made by humans. The means by which data is generated are designed and controlled by humans. Classifications and categorizations, formats, standards, and protocols, media of storage, transport, and dissemination are all integral parts of infrastructures that make data readable, searchable, manipulatable, and transmittable via the Internet. Each of these are themselves assemblages of materialities, social norms, organizational practices, histories, ideologies, and law, in form of legal instruments, practices, and institutions. As Lauren F. Klein and Miriam Posner observe: “data sets never arrive in the world fully formed, but are assembled from tangles of historical forces and ideological motivations, as well as practical concerns.”20

That data is thus constructed and highly contextual is well-recognized in science and technology studies, media, communications, and information studies, and the emergent discipline of critical data studies, as well as by feminist and critical race scholars and many others who see data not merely as a resource but as a social practice. 21 This has allowed these scholars to ask pertinent questions such as: Who gains access to and is able to extract value from data?22 What mechanisms enable personal data to be controlled by corporations? 23 How does data production and processing shape identities, environments, and our understandings of the world?24 These questions, in turn, have allowed for examination of data not simply as a resource but also as a site of power that can reinforce (as well as subvert) existing inequalities along gender,25 race,26 sexuality, and class dimensions, 27 within and across countries. A key theme that weaves through these lines of research is the importance of various practices involved in producing, accumulating, and analyzing data on democracy, freedom, selfgovernance, and socio-economic and political (in)equality.

These two discourses — one that is concerned with data as a resource that can be commodified to derive value and another that emphasizes data-as-a-social practice — proceed largely in parallel and intersect rarely. We try to bring them into conversation with one another by adopting an infrastructural perspective. Our goal is to illustrate how data inequality is constituted through control over relevant infrastructures and to illuminate the co-constitutive relationship between infrastructures and law. These themes are explored in the ensuing sections.

## Case

#### The role of the ballot is to determine if the aff’s a good idea—anything else is self-serving, arbitrary and begs the question of the rest of the debate. Evaluate consequences

Christopher A. Bracey 6, Associate Professor of Law, Associate Professor of African & African American Studies, Washington University in St. Louis, September, Southern California Law Review, 79 S. Cal. L. Rev. 1231, p. 1318

Second, reducing conversation on race matters to an ideological contest allows opponents to elide inquiry into whether the results of a particular preference policy are desirable. Policy positions masquerading as principled ideological stances create the impression that a racial policy is not simply a choice among available alternatives, but the embodiment of some higher moral principle. Thus, the "principle" becomes an end in itself, without reference to outcomes. Consider the prevailing view of colorblindness in constitutional discourse. Colorblindness has come to be understood as the embodiment of what is morally just, independent of its actual effect upon the lives of racial minorities. This explains Justice Thomas's belief in the "moral and constitutional equivalence" between Jim Crow laws and race preferences, and his tragic assertion that "Government cannot make us equal [but] can only recognize, respect, and protect us as equal before the law." [281](http://web.lexis-nexis.com/universe/document?_m=cd9713b340d60abd42c2b34c36d8ef95&_docnum=9&wchp=dGLbVzz-zSkVA&_md5=9645fa92f5740655bdc1c9ae7c82b328) For Thomas, there is no meaningful difference between laws designed to entrench racial subordination and those designed to alleviate conditions of oppression. Critics may point out that colorblindness in practice has the effect of entrenching existing racial disparities in health, wealth, and society. But in framing the debate in purely ideological terms, opponents are able to avoid the contentious issue of outcomes and make viability determinations based exclusively on whether racially progressive measures exude fidelity to the ideological principle of colorblindness. Meaningful policy debate is replaced by ideological exchange, which further exacerbates hostilities and deepens the cycle of resentment.

#### Biological death is the ultimate evil – it obliterates metaphysics and ontology

Paterson 3 - Department of Philosophy, Providence College, Rhode Island Craig, “A Life Not Worth Living?”, Studies in Christian Ethics, SAGE

Contrary to those accounts, I would argue that it is death per se that is really the objective evil for us, not because it deprives us of a prospective future of overall good judged better than the alternative of non-being. It cannot be about harm to a former person who has ceased to exist, for no person actually suffers from the sub-sequent non-participation. Rather**,** death in itself is an evil to us because it ontologically destroys the current existent subject — it is the ultimate in metaphysical lightening strikes.80 The evil of death is truly an ontological evil borne by the person who already exists, independently of calculations about better or worse possible lives. Such an evil need not be consciously experienced in order to be an evil for the kind of being a human person is. Death is an evil because of the change in kind it brings about, a change that is destructive of the type of entity that we essentially are. Anything, whether caused naturally or caused by human intervention (intentional or unintentional) that drastically interferes in the process of maintaining the person in existence is an objective evil for the person. What is crucially at stake here, and is dialectically supportive of the self-evidency of the basic good of human life, is that death is a radical interference with the current life process of the kind of being that we are. In consequence, death itself can be credibly thought of as a ‘primitive evil’ for all persons, regardless of the extent to which they are currently or prospectively capable of participating in a full array of the goods of life.81 In conclu sion, concerning willed human actions, it is justifiable to state thatany intentional rejection of human life itself cannot therefore be warranted since it is an expression of an ultimate disvalue for the subject, namely, the destruction of the present person; a radical ontological good that we cannot begin to weigh objectively against the travails of life in a rational manner. To deal with the sources of disvalue (pain, suffering, etc.) we should not seek to irrationally destroy the person, the very source and condition of all human possibility**.**

#### Tech innovation undergirded by profit motives are driving the Second Machine Age, which dematerializes capitalism and makes growth a sustainable necessity – they’re right that cybernetics are transforming capitalism, but that’s good

This ev is v v v long/a but it’s amazing – answers basically every aff arg

McAfee, 19—cofounder and codirector of the MIT Initiative on the Digital Economy at the MIT Sloan School of Management, former professor at Harvard Business School and fellow at Harvard’s Berkman Center for Internet and Society (Andrew, “Looking Ahead: The World Cleanses Itself This Way,” *More from Less: The Surprising Story of How We Learned to Prosper Using Fewer Resources—and What Happens Next*, Chapter 14, pg 278-292, Kindle, dml)

The decreases in resource use, pollution, and other exploitations of the earth cataloged in the preceding chapters are great news. But are they going to last? It could be that we're just living in a pleasant interlude between the Industrial Era and another rapacious period during which we massively increase our footprint on our planet and eventually cause a giant Malthusian crash.

It could be, but I don't think so. Instead, I think we're going to take better care of our planet from now on. I'm confident that the Second Machine Age will mark the time in our history when we started to progressively and permanently tread more lightly on the earth, taking less from it and generally caring for it better, even as we humans continue to become more numerous and prosperous. The work of Paul Romer, who shared the 2018 Nobel Prize in economics, is one of the sources of this confidence.

Growth Mindset

Romer's largest contribution to economics was to show that it's best not to think of new technologies as something that companies buy and bring in from the outside, but instead as something they create themselves (the title of his most famous paper, published in 1990, is "Endogenous Technological Change"). These technologies are like designs or recipes; as Romer put it, they’re "the instructions that we follow for combining raw materials." This is close to the definitions of technology presented in chapter 7.

Why do companies invent and improve technologies? Simply, to generate profits. They come up with instructions, recipes, and blueprints that will let them grow revenues or shrink costs. As we saw repeatedly in chapter 7, capitalism provides ample incentive for this kind of tech progress.

So far, all this seems like a pretty standard argument for how the first two horsemen work together. Romer's brilliance was to highlight the importance of two key attributes of the technological ideas companies come up with as they pursue profits. The first is that they're nonrival, meaning that they can be used by more than one person or company at a time, and that they don't get used up. This is obviously not the case for most resources made out of atoms—I can't also use the pound of steel that you've just incorporated into the engine of a car—but it is the case for ideas and instructions. The Pythagorean theorem, a design for a steam engine, and a recipe for delicious chocolate chip cookies aren't ever going to get "used up" no matter how much they're used.

The second important aspect of corporate technologies is that they're partially excludable. This means that companies can kind of prevent others from using them. They do this by keeping the technologies secret (such as the exact recipe for Coca-Cola), filing for patents and other intellectual-property protection, and so on. However, none of these measures is perfect (hence the words partially and kind of). Trade secrets leak. Patents expire, and even before they expire, they must describe the invention they're claiming and so let others study it.

Partial excludability is a beautiful thing. It provides strong incentives for companies to create useful, profit-enhancing new technologies that they alone can benefit from for a time, yet it also ensures that the new techs will eventually "spill over"—that with time they’ll diffuse and get adopted by more and more companies, even if that's not what their originators want.

Romer equated tech progress to the production by companies of nonrivalrous, partially excludable ideas and showed that these ideas cause an economy to grow. What's more, he also demonstrated that this idea-fueled growth doesn't have to slow down with time. It's not constrained by the size of the labor force, the amount of natural resources, or other such factors. Instead, economic growth is limited only by the idea-generating capacity of the people within a market. Romer called this capacity "human capital" and said at the end of his 1990 paper, "The most interesting positive implication of the model is that an economy with a larger total stock of human capital will experience faster growth."

This notion, which has come to be called "increasing returns to scale," is as powerful as it is counterintuitive. Most formal models of economic growth, as well as the informal mental ones most of us walk around with, feature decreasing returns—growth slows down as the overall economy gets bigger. This makes intuitive sense; it just feels like it would be easier to experience 5 percent growth in a $1 billion economy than a $1 trillion one. But Romer showed that as long as that economy continued to add to its human capital—the overall ability of its people to come up with new technologies and put them to use—it could actually grow faster even as it grew bigger. This is because the stock of useful, nonrivalrous, nonexcludable ideas would keep growing. As Romer convincingly showed, economies run and grow on ideas.

The Machinery of Prosperity

Romer's ideas should leave us optimistic about the planetary benefits of digital tools—hardware, software, and networks—for three main reasons. First, countless examples show us how good these tools are at fulfilling the central role of technology, which is to provide "instructions that we follow for combining raw materials." Since raw materials cost money, profit-maximizing companies are particularly keen to find ways to use fewer of them. So they use digital tools to come up with beer cans that use less aluminum, car engines that use less steel and less gas, mapping software that removes the need for paper atlases, and so on and so on. None of this is done solely for the good of the earth—it's done for the pursuit of profit that's at the heart of capitalism—yet it benefits the planet by, as we've seen, causing us to take less from it.

Digital tools are technologies for creating technologies, the most prolific and versatile ones we've ever come up with. They're machines for coming up with ideas. Lots of them. The same piece of computer-aided design software can be used to create a thinner aluminum can or a lighter and more fuel-efficient engine. A drone can be used to scan farmland to see if more irrigation is needed, or to substitute for a helicopter when filming a movie. A smartphone can be used to read the news, listen to music, and pay for things, all without consuming a single extra molecule.

In the Second Machine Age, the global stock of digital tools is increasing much more quickly than ever before. It's being used in countless ways by profit-hungry companies to combine raw materials in ways that use fewer of them. In advanced economies such as America's, the cumulative impact of this combination of capitalism and tech progress is clear: absolute dematerialization of the economy and society, and thus a smaller footprint on our planet.

The second way Romer's ideas about technology and growth are showing up at present is via decreased excludability. Pervasive digital tools are making it much easier for good designs and recipes to spread around the world. While this is often not what a company wants—it wants to exclude others from its great cost-saving idea— excludability is not as easy as it used to be.

This isn't because of weaker patent protection, but instead because of stronger digital tools. Once one company shows what's possible, others use hardware, software, and networks to catch up to the leader. Even if they can't copy exactly because of intellectual-property restrictions, they can use digital tools to explore other means to the same end. So, many farmers learn to get higher yields while using less water and fertilizer, even though they combine these raw materials in different ways. Steve Jobs would certainly have preferred for Apple to be the only provider of smartphones after it developed the iPhone, but he couldn't maintain the monopoly no matter how many patents and lawsuits he filed. Other companies found ways to combine processors, memory, sensors, a touch screen, and software into phones that satisfied billions of customers around the world.

The operating system that powers most non-Apple smartphones is Android, which is both free to use and freely modifiable. Google's parent company, Alphabet, developed and released Android without even trying to make it excludable; the explicit goal was to make it as widely imitable as possible. This is an example of the broad trend across digital industries of giving away valuable technologies for free.

The Linux operating system, of which Android is a descendant, is probably the best-known example of free and open-source software, but there are many others. The online software repository GitHub maintains that it's "the largest open source community in the world" and hosts millions of projects. The Arduino community does something similar for electronic hardware, and the Instructables website contains detailed instructions for making equipment ranging from air-particle counters to machine tools, all with no intellectual-property protection. Contributors to efforts such as these have a range of motivations (Alphabet's goals with Android were far from purely altruistic—among other things, the parent of Google wanted to achieve a quantum leap in mobile phone users around the world, who would avail themselves of Google Search and services such as YouTube), but they're all part of the trend of technology without excludability, which is great news for growth.

As we saw in chapter 10, smartphone use and access to the Internet are increasing quickly across the planet. This means that people no longer need to be near a decent library or school to gain knowledge and improve their abilities. Globally, people are taking advantage of the skill-building opportunities of new technologies. This is the third reason that the spread of digital tools should make us optimistic about future growth: these tools are helping human capital grow quickly.

The free Duolingo app, for example, is now the world's most popular way to learn a second language. Of the nearly 15 billion Wikipedia page views during July of 2018, half were in languages other than English. Google's chief economist, Hal Varian, points out that hundreds of millions of how-to videos are viewed every day on YouTube, saying, "We never had a technology before that could educate such a broad group of people anytime on an as-needed basis for free."

Romer's work leaves me hopeful because it shows that it's our ability to build human capital, rather than chop down forests, dig mines, or burn fossil fuels that drives growth and prosperity. His model of how economies grow also reinforces how well capitalism and tech progress work together, which is a central point of this book. The surest way to boost profits is to cut costs, and modern technologies, especially digital ones, offer unlimited ways to combine and recombine materials—to swap, slim, optimize, and evaporate—in cost-reducing ways. There's no reason to expect that the two horsemen of capitalism and tech progress will stop riding together anytime soon. Quite the contrary. Romer's insights reveal that they're likely to gallop faster and farther as economies grow.

Our Brighter, Lighter Future

The world still has billions of desperately poor people, but they won't remain that way. All available evidence strongly suggests that most will become much wealthier in the years and decades ahead. As they earn more and consume more, what will be the impact on the planet?

The history and economics of the Industrial Era lead to pessimism on this important question. Resource use increased in lockstep with economic growth throughout the two centuries between James Watt's demonstration of his steam engine and the first Earth Day. Malthus and Jevons seemed to be right, and it was just a question of when, not if, we'd run up against the hard planetary limits to growth.

But in America and other rich countries something strange, unexpected, and wonderful happened: we started getting more from less. We decoupled population and economic growth from resource consumption, pollution, and other environmental harms. Malthus's and Jevons's ideas gave way to Romer's, and the world will never be the same.

This means that instead of worrying about the world's poor becoming richer, we should instead be helping them upgrade economically as much and as quickly as possible. Not only is it the morally correct thing to do, it's also the smart move for our planet. As today’s poor countries get richer, their institutions will improve and most will eventually go through what Ricardo Hausmann calls "the capitalist makeover of production." This makeover doesn't enslave people, nor does it befoul the earth.

As today’s poor get richer, they'll consume more, but they'll also consume much differently from earlier generations. They won't read physical newspapers and magazines. They'll get a great deal of their power from renewables and (one hopes) nuclear because these energy sources will be the cheapest. They’ll live in cities, as we saw in chapter 12; in fact, they already are. They'll be less likely to own cars because a variety of transportation options will be only a few taps away. Most important, they'll come up with ideas that keep the growth going, and that benefit both humanity and the planet we live on.

Predicting exactly how technological progress will unfold is much like predicting the weather: feasible in the short term, but impossible over a longer time. Great uncertainty and complexity prevent precise forecasts about, for example, the computing devices we’ll be using thirty years from now or the dominant types of artificial intelligence in 2050 and beyond.

But even though we can't predict the weather long term, we can accurately forecast the climate. We know how much warmer and sunnier it will be on average in August than in January, for example, and we know that global average temperatures will rise as we keep adding greenhouse gases to the atmosphere. Similarly, we can predict the "climate" of future technological progress by starting from the knowledge that it will be heavily applied in the areas where it can affect capitalism the most. As we've seen over and over, tech progress supplies opportunities to trim costs (and improve performance) via dematerialization, and capitalism provides the motive to do so.

As a result, the Second Enlightenment will continue as we move deeper into the twenty-first century. I'm confident that it will accelerate as digital technologies continue to improve and multiply and global competition continues to increase. We’ll see some of the most striking examples of slim, swap, evaporate, and optimize in exactly the places where the opportunities are biggest. Here are a few broad predictions, spanning humanity's biggest industries.

Manufacturing. Complex parts will be made not by the techniques developed during the Industrial Era, but instead by three- dimensional printing. This is already the case for some rocket engines and other extremely expensive items. As 3-D printing improves and becomes cheaper, it will spread to automobile engine blocks, manifolds and other complicated arrangements of pipes, airplane struts and wings, and countless other parts. Because 3-D printing generates virtually no waste and doesn't require massive molds, it accelerates dematerialization.

We'll also be building things out of very different materials from what we're using today. We're rapidly improving our ability to use machine learning and massive amounts of computing power to screen the huge number of molecules available in the world. Well use this ability to determine which substances would be best for making flexible solar panels, more efficient batteries, and other important equipment. Our search for the right materials to use has so far been slow and laborious. That's about to change.

So is our ability to understand nature's proteins, and to generate new ones. All living things are made out of the large biomolecules known as proteins, as are wondrous materials such as spiders' silk. The cells in our bodies are assembly lines for proteins, but we currently understand little about how these assembly lines work—how they fold a two-dimensional string of amino acids into a complicated 3-D protein. But thanks to digital tools, we're learning quickly. In 2018, as part of a contest, the AlphaFold software developed by Google DeepMind correctly guessed the structure of twenty-five out of forty-three proteins it was shown; the second-place finisher guessed correctly three times. DeepMind cofounder Demis Hassabis says, "We [haven't] solved the protein-folding problem, this is just a first step... but we have a good system and we have a ton of ideas we haven't implemented yet." As these good ideas accumulate, they might well let us make spider-strength materials.

Energy. One of humanity's most urgent tasks in the twenty-first century is to reduce greenhouse gas emissions. Two ways to do this are to become more efficient in using energy and, when generating it, to shift away from carbon-emitting fossil fuels. Digital tools will help greatly with both.

Several groups have recently shown that they can combine machine learning and other techniques to increase the energy efficiency of data centers by as much as 30 percent. This large improvement matters for two reasons. First, data centers are heavy users of energy, accounting for about 1 percent of global electricity demand. So efficiencies in these facilities help. Second, and more important, these gains indicate how much the energy use of all our other complicated infrastructures— everything from electricity grids to chemical plants to steel mills—can be trimmed. All are a great deal less energy efficient than they could be. We have both ample opportunity and ample incentive now to improve them.

Both wind and solar power are becoming much cheaper, so much so that in many parts of the world they're now the most cost-effective options, even without government subsidies, for new electrical generators. These energy sources use virtually no resources once they're up and running and generate no greenhouse gases; they're among the world champions of dematerialization.

In the decades to come they might well be joined by nuclear fusion, the astonishingly powerful process that takes place inside the sun and other stars. Harnessing fusion has been tantalizingly out of reach for more than half a century—the old joke is that it's twenty years away and always will be. A big part of the problem is that it's hard to control the fusion reaction inside any human- made vessel, but massive improvements in sensors and computing power are boosting hope that fusion power might truly be only a generation away.

Transportation. Our current transportation systems are chronically inefficient. Most vehicles aren't used much of the time, and even when they’re in use, they're not nearly full. Now that we have technologies that let us know where every driver, passenger, piece of cargo, and vehicle is at all times, we can greatly increase the utilization and efficiency of every element of transportation.

Renting instead of owning transportation is a likely consequence of this shift. Instead of owning cars, which typically sit idle more than 90 percent of the time, more people will choose to access transportation as needed. We're already seeing this with car-hailing companies such as Uber and Lyft. These services are quickly spreading around the world, and expanding to cover more modes of transportation, from motorbikes to bicycles to electric scooters. They're also moving into commercial applications such as long- and short-haul trucking. As this shift continues, we’ll need fewer tons of steel, aluminum, plastic, gasoline, and other resources to move the world's people and goods around.

We might also experience less congestion and gridlock as we try to get around. Bikes and scooters take up little space compared to cars, so streets can accommodate many more of them. Technology also gives us the ability to implement many forms of "congestion pricing," which has been shown to reduce gridlock by making car access to busy streets expensive enough that people use other options. The most intriguing future transportation platform of all might be the sky. The same technologies that power today's small drones can be scaled up to build "air taxis" with as many as eight propellers and no pilot. Such contraptions sound like science fiction today, but they might be carrying us around by midcentury.

Agriculture. As we saw in chapter 5, leading farms have demonstrated an ability to increase their tonnage of output year after year while decreasing their use of inputs such as land, water, and fertilizer. This trend toward optimization will continue thanks to a set of innovations under the label precision agriculture. The precision comes from many sources, including better sensors of plant and animal health, soil quality and moisture, and so on; the ability to deliver fertilizer, pesticides, and water just where they're needed; and machinery that adapts itself to each plant or animal. All these varieties of precision will combine to allow traditional farms to generate more from less.

So will changes to the genomes of plants and animals. DNA modifications will increase disease and drought tolerance, expand where crops can be grown, and allow us to get more of what we want from each crop or herd. As we saw in chapter 9, they'll also allow us to take better care of vulnerable populations such as infants in poor countries by creating golden rice and other nutrition enhancers. We'll also be able to make much more precise and targeted genetic modifications thanks to a new crop of gene-editing tools that are large improvements over their more scattershot predecessors. Opposition to genetically modified organisms is fierce in some quarters, but isn't based on reason or science. This opposition will, one hopes, fade.

Throughout human history, just about all farming has been done in fields. For some crops, this is now changing. Agriculture has moved indoors, where parameters such as light, humidity, fertilizer, and even the composition of the atmosphere can be precisely monitored and controlled. In everything from urban buildings to shipping containers, crops are now being grown with progressively less labor and fewer material inputs. These completely contained farms will spread and help reduce the planetary footprint of our agriculture.

These examples aren't intended to be comprehensive, and I don't have precise estimates of how likely each innovation is, or when it's most likely to occur. I offer them only to indicate how broad and exciting are the possibilities offered by the two horsemen of capitalism and technological progress, and how they’ll continue to dematerialize our consumption and let us increase our prosperity while treading more lightly on our planet.

#### Free markets also solve their bioterror impacts

Jackson 16. Kerry, Pacific Research Institute; 12/19/16; Free Market Policies Needed To Incentivize Creation Of New Life-Saving Treatments; https://www.pacificresearch.org/article/free-market-policies-needed-to-incentivize-creation-of-new-life-saving-treatments/

“Our strongest antibiotics don’t work and patients are left with potentially untreatable infections,” Director Dr. Tom Frieden said when the CDC issued its warning. He asked doctors, hospitals and public health officials to “work together” to “stop these infections from spreading.” The 2014 Report to the President expressed a similar concern: “The evolution of antibiotic resistance is now occurring at an alarming rate and is outpacing the development of new countermeasures capable of thwarting infections in humans. This situation threatens patient care, economic growth, public health, agriculture, economic security and national security.” For those thinking this sort of thing shouldn’t be happening when medical science is more advanced than can almost be conceived, be assured that it is. And unless there are public policy interventions, it’s likely to get worse. “More and more microorganisms will continue to gain resistance to the current drug therapies because (antimicrobial resistance, or AMR) is basic evolution,” Wayne Winegarden writes in the Pacific Research Institute’s newly-released report “Incenting the Development of Antimicrobial Medicines to Address the Problem of Drug-Resistant Infections.” The International Federation of Pharmaceutical Manufacturers says the problem is caused by “a dearth of new antibiotic medicines.” At the same time that there’s been an increase in AMR, there has been “a sharp decline in the development of new antibiotic medicines.” The group reports that only two new classes of antibiotics have been discovered in the last three decades compared to 11 in the previous 50 years. The answers to many medical problems are still not within reach of researchers. But the hazards of AMR can be diminished. Winegarden suggests we begin with public health campaigns that encourage handwashing, which he calls a highly effective and low-cost way to reduce the spread of infection. He further recommends policy that would address the problem of antibiotic overuse and greater use of vaccines to cut the incidents of infection. But Winegarden’s primary concern is establishing the correct incentives for developing new antimicrobial medicines that would be effective against AMR microorganisms. He’s specifically referring to policies “based on a thorough understanding of the disincentives that are currently inhibiting their development.” “These disincentives are well-recognized,” he writes. “Despite the medical need, and despite the generally strong return on investment for many other drug classes, the return on investment for developing new antimicrobial medicines (particularly antibiotics) is too low.” Producing a new drug is a grinding and expensive endeavor. It can take 10 to 15 years to develop a single prescription drug that is introduced to the market, and a company can spend as much as $5.5 billion on research and development for each medication that is eventually approved and prescribed. Less than 2 percent of all projects launched to create new drugs succeed. This is not an environment in which pharmaceutical companies can get too amped up about pursuing new treatments. Yet new drug approvals increased over the last decade. Don’t look for a surge of antimicrobial drugs in that pipeline, though. Winegarden says that particular drug class is among several that “face unique impediments” that serve as disincentives for innovation. To overcome the steep hill that impedes the development of new AMR drugs, lawmakers must implement policies that unleash the incentives of the free market. Policymakers also should look at the 1983 federal Orphan Drug Act and its market-oriented reforms that increased the number of drugs developed to treat rare diseases. More than 400 have been introduced to the market since the law was enacted, compared to fewer than 10 in the 1970s. Put another way, government needs to remove its anchors from the process and let the market do what it does so well. In this case, that’s restoring patients’ health, enriching innovative companies that create jobs, and inspiring biotech start-ups such as the group of Stanford undergraduates that has been capitalized to develop new antibiotics. If the proper incentives are in place, the needed treatments will follow.

#### Their Impacts:

#### AT: Biopiracy

#### 1] McAfee solves biopiracy – stealing natural resources from the global south loses profitability long before those resources run out - a shift to dematerialization occurs before their impacts

#### 2] Dematerialization also answers the lottery affect – as cap shifts its focus to the circulation of existing data rather than new production, “lottery items” like cures for cancer are seen as found through bigger and better algorithms and software, not expeditions into jungles

#### 3] BioD isn’t existential - redundancy, intervening actors, boundaries will never be crossed – their impact ev says the word existential w 0 warrant

Kareiva & Carranza 18 (Peter Kareiva & Valerie Carranza. Institute of the Environment and Sustainability,. “Existential Risk Due to Ecosystem Collapse: Nature Strikes Back.” Volume 102, September 2018, Pages 39-50)

**The** interesting **question is whether any** of the planetary **thresholds** other than CO2 **could** **also portend existential risks**. Here **the answer is not clear**. **One boundary often mentioned as a concern for the fate of global civilization is biodiversity** (Ehrlich & Ehrlich, 2012), with the proposed safety threshold being a loss of greater than .001% per year (Rockström et al., 2009). **There is little evidence** **that** this particular .001% **annual loss is a threshold—and it is hard to imagine any data that would allow one to identify where the threshold was** (Brook et al., 2013; Lenton & Williams, 2013). **A better question is whether one can imagine any scenario** **by which the loss of too many species leads to the collapse of societies and environmental disasters**, even though one cannot know the absolute number of extinctions that would be required to create this dystopia. **While there are data that relate local reductions** in species richness **to altered ecosystem function, these results do not point to substantial existential risks**. **The data are small-scale experiments** **in which plant productivity, or nutrient retention is reduced as species number declines locally** (Vellend, 2017), **or are local observations of increased variability in fisheries yield when stock diversity is lost** (Schindler et al., 2010). **Those are not existential risks**. **To make the link even more tenuous, there is little evidence that biodiversity is even declining at local scales** (Vellend et al 2017; Vellend et al., 2013). **Total** planetary **biodiversity may be in decline, but local and regional biodiversity is often staying the same** **because species from elsewhere replace local losses**, **albeit homogenizing the world in the process**. **Although the majority of conservation scientists are likely to flinch at this conclusion, there is growing skepticism regarding the strength of evidence linking trends in biodiversity loss to an existential risk for humans** (Maier, 2012; Vellend, 2014). **Obviously if all biodiversity disappeared civilization would end—but no one is forecasting the loss of all species**. It seems plausible that **the loss of 90%** of the world’s species **could also be apocalyptic, but no**t **one is predicting that degree of biodiversity loss either**. **Tragic, but plausible is the possibility our planet suffering a loss of as many as half of its species. If global biodiversity were halved, but at the same time locally the number of species stayed relatively stable, what would be the mechanism for an end-of-civilization or even end of human prosperity scenario?** **Extinctions and biodiversity loss are ethical and spiritual losses, but** perhaps **not an existential risk.** What about the remaining eight planetary boundaries? Stratospheric **ozone depletion** is one—but **thanks to the Montreal Protocol** ozone depletion **is being reversed** (Hand, 2016). **Disruptions of the nitrogen cycle** **and** of the **phosphorous** cycle **have also been proposed as representing potential planetary boundaries** (one boundary for nitrogen and one boundary for phosphorous). **There are compelling data linking excesses in these nutrients to environmental damage**. For example, over-application of fertilizer in Midwestern USA has led to dead zones in the Gulf of Mexico. Similarly, excessive nitrogen has polluted groundwater in California to such an extent that it is unsuitable for drinking and some rural communities are forced to drink bottled water. **However, these impacts are local**. **At the same time that there is too much N loading in the US, there is a need for more N in Africa** **as a way of increasing agricultural yields** (Mueller et al., 2012). **While the disruption of nitrogen and phosphorous cycles clearly perturb local ecosystems**, **end-of-the-world scenarios** **seem** a bit **far-fetched**. **Another hypothesized planetary boundary entails the conversion of natural habitats to agricultural land**. **The mechanism by which too much agricultural land could cause a crisis is unclear**—**unless it is because** land **conversion causes so much biodiversity loss that is species extinctions that are the proximate cause of an eco-catastrophe**. Excessive **chemical pollution** and excessive atmospheric aerosol loading **have** each **been suggested as planetary boundaries as well. In the case of these pollution boundaries, there are well-documented mechanisms by which surpassing some concentration of a pollutant inflicts severe human health hazards.** **There is abundant evidence linking chemical and aerosol pollution to higher mortality and lower reproductive success in humans, which in turn could cause a major die-off. It is** perhaps **appropriate then that when Hollywood** **envisions an unlivable world, it often invokes a story of humans poisoning themselves. That said, it is doubtful that we will poison ourselves towards extinction**. Data show that **as nations develop and increase their wealth, they tend to clean up their air and water and reduce environmental pollution** (Flörke et al., 2013; Hao & Wang, 2005). **In addition, as economies become more circular** (see Mathews & Tan, 2016), **environmental damage due to waste products is likely to decline. The key point is that the pollutants associated with the planetary boundaries are so widely recognized**, **and the consequences of local toxic events are so immediate**, **that it is reasonable to expect national governments to act before we suffer a planetary ecocatastrophe.**

#### AT “we’re not tech bad”

#### 1] Yes they are – even if the aff is compatible with “intimacy between tech and culture” which is a quote from their hui ev, our impact turn requires upending existing cultural and social system in the pursuit of endless technological improvement on life – McAfee indicates the way we overcome food shortages is through the genetic improvement of both plants and the consumer. The way we expand human capital is through integrating the world in a common cybernetic network.

#### Their method:

#### “Affective resistance” is the classic ivory tower academic method that does absolutely nothing – they assume a transformative potential from small moments of resistance that simply does not exist which just plays into the larger structures they criticize

* Also answers their uq question – even if theres an opportunity now, they don’t do anything about it

Reed 16 (Adolph, Jr., Prof. of Political Science @ Penn., “Splendors and Miseries of the Antiracist “Left”” *Nonsite*, http://nonsite.org/editorial/splendors-and-miseries-of-the-antiracist-left-2)

More than a decade and a half ago I criticized similar formulations of a notion of “infrapolitics,” understood as the domain of pre-political acts of everyday “resistance” undertaken by subordinated populations, which was then all the rage in cultural studies programs. Proponents of the political importance of this domain insisted that, because insurgent movements emerge within such cultures of quotidian resistance, a) examining them could help in understanding the processes through which insurgencies develop and/or b) they therefore ought to be considered as expressions of an insurgent politics themselves. Several factors accounted for the popularity of that version of the argument, which mainly had to do to with the political economy of academic life, including the self-propulsion of academic trendiness and the atrophy of the left outside the academy, which encouraged flights into fantasy for the sake of optimism. The infrapolitics idea also resonated with the substantive but generally unadmitted group essentialism underlying claims that esoteric, insider knowledge is necessary to decipher the “hidden transcripts” of the subordinate populations; put more bluntly, elevating infrapolitics to the domain on which the oppressed express their politics most authentically increased its interpreters’ academic capital.8

I discussed those factors in my critique. However, the point in that argument most pertinent for evaluating Birch and Heideman’s confidence that the contradictions they acknowledge in BLM should be seen only as growing pains of a “new movement” is the following:

At best, those who romanticize “everyday resistance” or “cultural politics” read the evolution of political movements teleologically; they presume that those conditions necessarily, or even typically, lead to political action. They don’t. Not any more than the presence of carbon and water necessarily leads to the evolution of Homo sapiens. Think about it: infrapolitics is ubiquitous, developed political movements are rare.9

#### There is no exit from information capitalism – their method fails so its try or die to make it work – pespi challenge for a 1ar explanation of how “selective attacks on core nodes” occur and collapse global cap bc there ev sure doesn’t say

-lack of collective action proves

-we depend on global surveillance capitalism, or the ‘world computer’ for daily life---it’s how we get healthcare, communicate with others, get access to services, education, work etc people consider internet access a human right, and networks are organized explicitly to keep them from organizing

Shoshana Zuboff 19, Charles Edward Wilson Professor of Business Administration at the Harvard Business School (retired), where she joined the faculty in 1981, “Surveillance Capitalism and the Challenge of Collective Action,” New Labor Forum, 1/24/19, https://journals.sagepub.com/doi/full/10.1177/1095796018819461

The Challenge to Collective Action

How do they get away with it? Dozens of surveys conducted since 2008 attest to substantial majorities in the United States, the European Union, and around the world that reject the premises and practices of surveillance capitalism, yet it persists, succeeds, grows, and dominates, remaining largely uncontested by either existing or new forms of collective action.28 In other work I have detailed sixteen conditions that enabled this new logic of accumulation to root and flourish.29 Here I want to underscore two of these conditions: The first is the absence of organic reciprocities between surveillance capitalist firms and their populations. This absence produces the second condition, in which dependency replaces reciprocity as the fulcrum of this commercial project.

A first answer to the question “How do they get away with it?” concerns a novel structural feature of this market form that diverges sharply from the history of market democracy. For all the failings, injustice, and violence of earlier forms of modern capitalism, the necessity of organic reciprocities with its populations has been a mark of endurance and adaptability. Symbolized in the twentieth century by Ford’s five-dollar day, these reciprocities reach back to Adam Smith’s original insights into the productive social relations of capitalism, in which firms rely on people as employees and customers. Smith argued that price increases had to be balanced with wage increases “so that the laborer may still be able to purchase that quantity of those necessary articles which the state of the demand for labor … requires that he should have.”30 By the 1980s, globalization and neoliberal ideology, operationalized in the shareholder-value movement, went a long way toward destroying these centuries-old reciprocities between capitalism and its communities. Surveillance capitalism completes the job.

Instrumentarianism is a market project that converges with the digital to achieve its own unique brand of social domination.

First, surveillance capitalists no longer rely on people as consumers. Instead, the axis of supply and demand orients the surveillance capitalist firm to businesses intent on anticipating the behavior of populations, groups, and individuals. The result is that populations are conceptualized as undifferentiated “users,” who are merely the sources of raw material for a digital-age production process aimed at a new business customer. Where individual consumers continue to exist in surveillance capitalist operations—purchasing smart appliances, digital assistants, dolls that spy, or behavior-based insurance policies, just to name a few examples—social relations are no longer founded on mutual exchange. In these and many other instances, products and services are merely hosts for surveillance capitalism’s data extraction operations. For example, the concept of the “smart home” has become emblematic of this new asymmetry. By 2018 the global smart home market was valued at $36 billion USD and expected to reach $151 billion by 2023.31 The numbers betray an earthquake beneath their surface. Consider just one smart home device: the Nest thermostat owned by Alphabet, the Google holding company, and merged with Google in 2018.32 The Nest thermostat collects data about its usage and environment. It uses motion sensors and computation to “learn” the behaviors of a home’s inhabitants. Nest’s apps can also gather data from other connected products such as cars, ovens, fitness trackers, beds.33 Such systems can, for example, trigger lights if an anomalous motion is detected, signaling video and audio recording, and even sending notifications to homeowners or others. As a result of the merger with Google, the thermostat, like other Nest products, will be built with Google’s artificial intelligence capabilities, including its personal digital “Assistant.”34 The thermostat and its brethren devices create immense new stores of knowledge and therefore new power—but for whom?

Wi-Fi-enabled and -networked, the thermostat’s intricate personalized data stores are uploaded to Google’s servers. Each thermostat comes with a “Privacy Policy,” a “Terms of Service Agreement,” and an “End-User Licensing Agreement.” These reveal oppressive privacy and security consequences in which sensitive household and personal information are shared with other smart devices, unnamed personnel, and third parties for the purposes of predictive analyses and sales to other unspecified parties. Nest takes little responsibility for the security of the information it collects and none for how the other companies in its ecosystem will put those data to use.35 A detailed analysis of Nest’s policies by two University of London scholars concluded that were one to enter into the Nest ecosystem of connected devices and apps, each with its own equally burdensome and audacious terms, the purchase of a single home thermostat entails the need to review nearly a thousand so-called contracts.36 Should the customer refuse to agree to Nest’s stipulations, the Terms of Service indicate that the functionality and security of the thermostat will be deeply compromised, no longer supported by the necessary updates meant to ensure its reliability and safety. The consequences can range from frozen pipes to failed smoke alarms to an easily hacked internal home system.37

The absence of consumer reciprocities is complemented by the absence of employment reciprocities. By historical standards the large surveillance capitalists employ relatively few people compared to their unprecedented computational resources. This pattern, in which a small, highly educated workforce leverages the power of a massive capital-intensive knowledge-production infrastructure, is called “hyperscale.”38 The historical discontinuity of the hyperscale business operation becomes apparent by comparing seven decades of General Motors (GM) employment levels and market capitalization to recent post-IPO (initial public offering) data from Google and Facebook. (I have confined the comparison here to Google and Facebook because both were pure surveillance capitalist firms even before their public offerings.)

Nest takes little responsibility for the security of the information it collects and none for how the other companies in its ecosystem will put those data to use.

From the time they went public to 2016, Google and Facebook steadily climbed to the heights of market capitalization, with Google reaching $532 billion by the end of 2016 and Facebook at $332 billion, without Google ever employing more than 75,000 people or Facebook more than 18,000. General Motors took four decades to reach its highest market capitalization of $225.15 billion in 1965, when it employed 735,000 women and men.39 Most startling is that GM employed more people during the height of the Great Depression than either Google or Facebook employs at their heights of market capitalization.

The GM pattern is the iconic story of the United States in the twentieth century, before globalization, neoliberalism, the shareholder-value movement, and plutocracy unraveled the public corporation and the institutions of what historian Karl Polanyi called “the double movement,” a network of “measures and policies … integrated into powerful institutions designed to check the action of the market relative to labor, land, and money.”40 Polanyi’s studies led him to conclude that the operations of a self-regulating market are profoundly destructive when allowed to run free of such countervailing laws and policies. It was the institutions of the double movement that tamed GM’s employment policies with fair labor practices, unionization, and collective bargaining, emblematic of stable reciprocities during the pre-globalization decades of the twentieth century. The societal result was predictable. In the 1950s, for example, 80 percent of adults said that “big business” was a good thing for the country, 66 percent believed that business required little or no change, and 60 percent agreed, “the profits of large companies help make things better for everyone who buys their products or services.”41

[A]…survey in 2015 found 91 percent of respondents disagreeing that the collection of personal information “without my knowing” is a fair tradeoff for a price discount.

Although some critics blamed GM’s institutional reciprocities for its failure to adapt to global competition in the late 1980s, leading eventually to its bankruptcy in 2009, analyses have shown that chronic managerial complacency and doomed financial strategies bore the greatest share of responsibility for the firm’s legendary decline, a conclusion that is fortified by the successes of the German automobile industry in the twenty-first century, where strong labor institutions formally share decision-making authority.42

Nearly seventy years later and in the absence of democratic checks on the power of surveillance capitalists, the picture is very different. For example, a major 2009 survey found that when Americans are informed of the ways that companies gather data for targeted online ads, 73 to 86 percent rejected such advertising.43 Another substantial survey in 2015 found 91 percent of respondents disagreeing that the collection of personal information “without my knowing” is a fair tradeoff for a price discount. Fifty-five percent disagreed that it was a fair exchange for improved services.44 In 2016 PEW Research reported only 9 percent of respondents as very confident in trusting social media sites with their data and 14 percent very confident about trusting companies with personal data. More than 60 percent wanted to do more to protect their privacy and believed there should be more regulation to protect privacy.45

Hyperscale firms have become emblematic of modern digital capitalism, and as capitalist inventions they present significant social and economic challenges, including their impact on employment and wages, industry concentration, and monopoly.46 In 2017 there were 24 hyperscale firms operating 320 data centers with anywhere between thousands and millions of servers (Google and Facebook are among the largest). One hundred more data centers are expected to be online by late 2018. Microsoft invested $20 billion in 2017, and in 2018 Facebook announced plans to invest $20 billion in a new hyperscale data center in Atlanta. According to one industry report, hyperscale firms are also building the world’s networks, especially subsea cables, which means that “a large portion of the global internet traffic is now running through private networks owned or operated by hyperscalers.” In 2016 Facebook and Google teamed up to build a new subsea cable between the United States and Hong Kong, described as the highest-capacity transpacific route to date.47 The surveillance capitalists who operate at hyperscale or outsource to hyperscale operations dramatically diminish any reliance on their societies as sources of employees, and the few for whom they do compete are largely drawn from the most-rarified strata of data science.

The absence of organic reciprocities with people as sources of either consumers or employees is a matter of exceptional importance in light of the historical relationship between market capitalism and democracy. In fact, the origins of democracy in both Britain and America have been traced to these very reciprocities. Even a brief glance at these histories can help us grasp the degree to which surveillance capitalism diverges from capitalism’s past, a divergence in which an extreme structural independence from people lays the foundation for surveillance capitalism’s unique approach to knowledge that we have called “radical indifference.”

In Britain, the rise of volume production and its wage-earning labor force in the nineteenth century contributed not only to workers’ economic power but also to a growing sense of labor’s political power and legitimacy. This produced a new sense of interdependence between ordinary people and elites. Economists Daron Acemoglu and James A. Robinson show that the rise of democracy in nineteenth-century Britain was inextricably bound to industrial capitalism’s dependency on the “the masses” and their contribution to the prosperity made possible by the new organization of production.48

Acemoglu and Robinson conclude that the “dynamic positive feedback” between “inclusive economic institutions” (i.e., institutions defined by reciprocities) and political institutions was critical to Britain’s substantial and non-violent democratic reforms. Inclusive economic institutions, they argue, “level the playing field,” especially when it comes to the fight for power, making it more difficult for elites to “crush the masses” rather than accede to their demands. Reciprocities in economics produced and sustained reciprocities in politics. “Clamping down on popular demands,” they write, “and undertaking a coup against inclusive political institutions would … destroy … [economic] gains, and the elites opposing greater democratization and greater inclusiveness might find themselves among those losing their fortunes from this destruction.”49

The spread of democracy also depended on the reciprocities of consumption, and the American Revolution is the outstanding example of this dynamic. Historian T.H. Breen argues in his path-breaking book, The Marketplace of Revolution, that it was the violation of these reciprocities that set the American Revolution into motion, uniting disparate provincial strangers into a radical new patriotic force. Breen explains that American colonists had come to depend on the “empire of goods” imported from England, and that this dependency instilled the sense of a reciprocal social contract: “For ordinary people, the palpable experience of participating in an expanding Anglo-American consumer market” intensified their sense of a “genuine partnership” with England. Eventually, the British Parliament famously misjudged the rights and obligation of this partnership, imposing a series of taxes that turned imported goods such as cloth and tea into “symbols of imperial oppression.”

Breen describes the unprecedented inventiveness of a political movement originating in the shared experience of consumption, the outrage at the violation of essential producer–consumer interdependencies, and the determination to make “goods speak to power.” The translation of consumer expectations into democratic revolution occurred in three waves, beginning in 1765, when the Stamp Act triggered popular protests, riots, and organized resistance finally expressed in the “nonimportation movement.” (Today we would call it a consumer boycott.)

As Breen tells it, the details of the Act were less important than the colonists’ realization that England did not perceive them as political or economic equals bound in mutually beneficial reciprocities. “By compromising the Americans’ ability to purchase the goods they desired,” he writes, “Parliament had revealed an intention to treat the colonists like second-class subjects,” levying a heavy price “on the pursuit of material happiness.”

In the absence of the organic reciprocities between producers, customers, and employees that bind populations in a shared fate, “user” dependency is the fulcrum of the surveillance capitalist project. Surveillance capitalism spread across the internet just as digital communications became the salient means of social participation. A 2010 BBC poll found that 79 percent of people in twenty-six countries considered internet access to be a fundamental human right.50 Six years later in 2016, the United Nations Human Rights Council would adopt specific language on the importance of internet access.51 In the United States, many people call the emergency services number, 911, on those rare occasions when Facebook is down.52 Most people find it difficult to withdraw from these utilities, and many ponder if it is even possible.53 The result has been an involuntary merger of personal necessity and economic extraction,

as the same channels that we rely on for daily logistics, social interaction, work, education, health care, access to products and services, and much more, now double as supply chain operations for surveillance capitalism’s surplus flows. The result is that effective social participation leads through the means of behavioral modification, eroding the choice mechanisms that once adhered to the private realm—exit, voice, and loyalty. There can be no exit from processes that are intentionally designed to bypass individual awareness and on which we must depend for effective daily life. Users lack reliable channels for voice. Loyalty is an empty suit, as participation is better explained in terms of necessity, dependency, helplessness, resignation, the foreclosure of alternatives, and enforced ignorance.