



BY ARIEL EZRACHI & MAURICE E. STUCKE¹



¹ Ariel Ezrachi is the Slaughter and May Professor of Competition Law at the University of Oxford and the Director of the University of Oxford Centre for Competition Law and Policy. Maurice E. Stucke is the Douglas A. Blaze Distinguished Professor of Law at the University of Tennessee and principal of the law firm Konkurrenz.

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VALUE IN DIGITAL PLATFORMS: THE CHOICE OF TRADEOFFS IN THE DIGITAL MARKETS ACT

By Carmelo Cennamo & Juan Santaló



HOW PLATFORMS CREATE VALUE THROUGH CORING AND IMPLICATIONS FOR MARKET DEFINITION

By Catherine Tucker



TOXIC INNOVATION IN THE DIGITAL ECONOMY

By Ariel Ezrachi & Maurice E. Stucke



RECOMMENDER SYSTEMS: APPROACHES TO SHAPE A SAFE, COMPETITIVE, AND INNOVATION-DRIVEN FUTURE

By Marco Iansiti, Rohit Chatterjee, Bartley Tablante, Sean Durkin, Anurag Gandhi & Abby Drokhlyansky



ZERO-PRICE PLATFORM SERVICES: THERE IS NO FREE LUNCH IN APPLYING THE “NO FREE LUNCH” PRINCIPLE

By Alexander Raskovich & John M. Yun



“FOR THE PUBLIC BENEFIT”: WHO SHOULD CONTROL OUR DATA?

By Sarit Markovich & Yaron Yehezkel



MINIMIZING PRIVACY RISKS IN REGULATING DIGITAL PLATFORMS: INTEROPERABILITY IN THE EU DMA

By Mikołaj Barczentewicz



COMPETITIVE DYNAMICS OF ONLINE AND BRICK-AND-MORTAR RETAIL PRICES

By Rosa Abrantes-Metz & Mame Maloney



CONSUMER EXPECTATIONS AND FAIR CONTRACTING FOR DIGITAL PRODUCTS

By Sean F. Ennis



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TOXIC INNOVATION IN THE DIGITAL ECONOMY

By Ariel Ezrachi & Maurice E. Stucke

Silicon Valley's genius combined with limited regulation promised a new age of technological innovation in which entrepreneurs would fuel unprecedented job growth, improve overall well-being, and address pressing issues. Instead, the leading tech companies design their sprawling ecosystems to extract value (often at the expense of individuals and business users), while crushing entrepreneurs that pose a threat. As a result, we get less disruptive innovation that actually benefits us and more innovations that surpass the dreams of yesteryears' autocracies. This essay highlights several important themes from our new book, *How Big-Tech Barons Smash Innovation and How to Strike Back* which examines and debunks the self-serving ideological platter that the Tech Barons serve, in depicting themselves as the engines of innovation in the digital economy.

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I. INTRODUCTION

The digital platform economy delivers on many fronts, offering us new products, technologies, and means to communicate, trade, and explore. And one of the celebrated aspects of the digital economy is the ensuing innovation. And even more so when speaking about the platform economy, where platforms, like coral reefs, attract innovators, disruptors, and new businesses and offer them unparalleled access to markets and users.

Indeed, there is little doubt as to the significant investments in research and development by leading tech firms, such as Google, Apple, Facebook, Amazon, and Microsoft. But behind the impressive numbers, lies a more complex tale that questions the merit of our quantitative fixation on numbers. A fixation that views the volume of investment as assurance for future prosperity. A fixation that ignores the value, nature, and plurality of innovation.

In our new book *How Big-Tech Barons Smash Innovation and How to Strike Back* (HarperCollins 2022), we look behind the numbers and explore the means through which these large tech firms, in controlling digital ecosystems, can distort the paths of innovation and undermine disruption.

Our inquiry into the distorting effects began in late 2017 when the European Commission asked us to research innovation in the digital economy. Our earlier work, including *Virtual Competition*, raised the concern of policymakers as we uncovered several significant risks of the digital economy, including sellers' pricing algorithms colluding. But on innovation, we, like many others, were optimistic. At first, we didn't think our innovation policies were working.

As we dug into the data over the next few years, we found multiple fallacies about innovation in the digital economy. After submitting our report, we continued our inquiry into the effects that these big tech barons have on innovation and how they not only affect the dynamics of competition within their tightly-controlled ecosystems but also the nature of innovation we receive. While Tech Barons tolerate innovations that do not threaten their ecosystems, they will smash disruption that threatens their profit models. This is problematic, especially as the Tech Barons' ecosystems expand.

Based on our research, including our discussions with market participants, four things became clear:

- *first*, the Tech Barons design their ecosystems to favor their interests (at the cost of crushing beneficial innovations);
- *second*, the Tech Barons' value chain dictates the type and scope of innovation that you will find, and in looking at the value chains, we can predict that the inventions will become creepier;
- *third*, even if you can avoid some or all of the Tech Barons' ecosystems, you cannot avoid the toxicity of some of their innovations; and
- *finally*, while the Big Tech Barons are in the news for their mounting antitrust attacks, the likely relief, if any, will not fix the underlying problems.

II. SO HOW DO TECH BARONS SUPPRESS DISRUPTION?

In controlling their ecosystems, they are in an advantageous position that offers them near-perfect market surveillance needed to identify and neutralize nascent threats. Using advanced technologies, the Tech Barons can identify market patterns and discern trends (and threats) well before others, including the government. This data advantage turns the nowcasting technology into a game-changer. Facebook, for example, acquired the data-security Onavo, to track users' smartphone activity. That technology was central in its acquisitions of perceived competitive threats, including WhatsApp.

With a clear view of risks beyond the horizons, the Tech Barons can engage in strategies aimed at distorting the supply of disruptive innovation. This includes their exclusion of disruptors from the ecosystem by refusing access or reducing interoperability. Strategies to distort the growth of disruptive technology may also involve the copycat of technologies to deprive disruptors of the scale necessary to survive, limiting disruptors' access to long-term funding, and of course, the acquisition of these disruptors.

Next, the Tech Barons can manipulate user demand for innovation. To reduce the adoption rate of disruptive innovations, the Tech Barons increase retention of users, reduce friction to the complementary sustaining innovations that fortify their ecosystem, and increase friction to the potentially disruptive innovations. The path to the Tech Baron's creations is frictionless (think, for example, how Amazon's Buy Box reduces

friction for purchasing items). In contrast, our path to the disruptive innovators, whom we describe as the Tech Pirates, has many obstacles, enough to deprive them of scale and experimentation (think of the challenges associated with side loading of apps). While many of us may have a sense of autonomy when we choose services online, we are walking down a path that was carefully designed for us. Using dark patterns, self-favoritism, and other means, the Tech Barons can nudge us toward innovations they want us to adopt and away from disruptors.

III. TOXIC INNOVATION

What happens when the Tech Barons distort the supply and demand of innovation? As our book explores, we receive fewer disruptive innovations, more innovations that sustain the Tech Barons' power, and more innovations that extract or destroy value. Once the Tech Barons can affect the supply and demand of innovation, the nature and value of innovation change. Value-creating innovations will be gradually displaced by innovations that focus on extracting value from the downstream users or upstream suppliers and primarily benefit the Tech Barons.

Of course, this is not an all-or-nothing scenario. As the Tech Barons' power increases, we won't be inundated with solely value-destroying innovations. Instead, it reflects a material but subtle change in the value and nature of innovation as the plurality of innovation diminishes. A look at the patents and research by the leading ecosystems confirms this trend, with advanced technologies that go far beyond predicting our behavior to some genuinely frightening methods of exploitation, manipulation, and extraction of value.

IV. RIPPLE EFFECTS

Many of us already sense that these toxic innovations weaken social cohesion, increase tribalism, and undermine democracy. But avoiding the Tech Barons' ecosystems, even if we could, is not the answer. As our book explores, the ripple effects from the toxic innovation extend far beyond the Tech Barons' ecosystems, the digital economy, the user experience, and the impact on disruptors. These toxic innovations ultimately erode our social and political fabric and harm our autonomy, democracy, and well-being. The value chains and profit motives have left us with new technologies that are ripping apart the social fabric and the foundations of our society.

We see these effects, for example, when we look at the business models and retention strategies at the heart of social media and online behavioral advertising. Tribalism and rancor are part of the price we pay for the loss of innovation plurality. Similarly, democracy is weakened from advanced microtargeting and manipulation, as profit motives lead to distortions that undermine the foundations on which our society is established.

Many are familiar with the story of Cambridge Analytica, but importantly, it is only one example of the microtargeting, manipulation, and deception of voters spawned by these toxic innovations. It is a symptom of a spreading problem where data advantage and negative messaging are the ultimate tools to control the crowd. Political campaigns are now designed to trigger the desired emotional reaction of individual voters. So, if you are among those with a high need for arousal, expect more violent, sexual, and fear-provoking content. An evolving disinformation machine at a scale and efficiency never seen before.

With disruptors crushed, these innovations fortify the prevailing value chain and business model. And while the Tech Barons offer tools to mitigate some of these effects (like requiring certain political ads to include disclaimers with the name and entity that paid for the ads), they cannot prevent their platforms from being weaponized or their toxic innovations from being deployed to undermine democracy. They must feed the beast, and that beast is destroying us.

V. WHY THE PROPOSED REGULATORY REFORMS ARE INSUFFICIENT

We all talk about innovation but don't appreciate the inadequacy of current enforcement policies and regulations. Most importantly, current policies do not address the key driver – the value chain – which is affecting the Tech Barons' strategies.

With these faults at the base of our policies, there is little wonder that we are off course. After all, any navigator knows a basic rule. A small degree error, insignificant in a short voyage, will increase the longer one travels. It's known as the "1 in 60 rule of thumb." A one-degree error in navigation will lead a pilot one mile away from her destination for every 60 miles of travel. This rule helps illustrate how seemingly insignificant flaws in past assumptions and policies have led us off course. It helps us appreciate the impact and actual costs of past economic and industrial policies that failed to adapt to the changing dynamics of competition and innovation in the digital economy. Considering the supersonic

speed in which we travel in the digital economy, and the significant degrees of error, it is perhaps not surprising that we find ourselves at a crisis point.

Of course, the Tech Barons prefer that we stick with the current antitrust policies, designed many years ago and ill-suited to deter their power to affect the supply and demand of innovation across their vast ecosystems. To ensure this, they challenge any change to the *status quo* and offer an ideological platter of claims that any change to the current policies will only chill innovation and put us at a competitive disadvantage against China. They tout how their ecosystems act as coral reefs in lowering the cost for others to innovate. And of course, the notion that disruptive innovation is around the corner, and therefore any intervention is superfluous. The power of these claims lies in their having a kernel of truth, and being oft-repeated. Even though they do not withstand scrutiny, conventional wisdom remains hard to resist.

Consequently, as a result of the Tech Barons' lobbying and resistance to change, our antitrust laws have failed to rein in the Tech Barons or deter them from smashing disruptive innovations. Even though competition authorities around the world by 2022 were challenging most of the Tech Barons, the lethal cocktail of ideology and lobbying has led the courts to marginalize antitrust, or at the very least its ability to protect against future disruption. Under the U.S. courts' price-centric approach, it is difficult to prove that the Tech Baron is indeed a monopoly (consider the struggles Epic and the FTC had in their monopolization cases against Apple and Facebook, respectively). Even if the agency overcomes that hurdle, it is often difficult for the agency to prove that the Tech Baron abused its dominance. Even if the agency succeeds, the relief will often be too little too late.

To address this gap, the U.S., EU, and elsewhere have proposed new regulations to deter the Tech Barons' anticompetitive behavior and make the digital economy more contestable and fairer. As we discuss, the new policies can go a long way to help protect future innovation, but they also suffer from limitations that will prevent them from eliminating the toxic innovation.

To see why we consider duck hunting. In hunting ducks, one needs to shoot where the duck is heading, not where it is now. Otherwise, the duck will be gone by the time the shot reaches its initial position. So you calculate the duck's likely path and shoot ahead of it. If you practice enough, you can predict the flight path. But in following the duck's flight path, you can become fixated on calculating the proper lead.

Why raise duck hunting when discussing the Tech Barons? Of course, the aim isn't to kill the Tech Barons. Driving them out of business would chill innovation. Underlying all the policy proposals is the desire to avoid chilling value-creating innovation, including those from the Tech Barons. Instead, the aim is to kill the Tech Barons' anti-competitive practices.

With this in mind, the duck hunting analogy illustrates the potential pitfalls of the existing reforms for the digital economy. In particular, one should not focus solely on past violations when designing new regulatory tools. Most of the specific obligations under Europe's and the U.S. proposals aim at the Tech Barons' past anticompetitive restraints. But policymakers need to consider that as technologies evolve, the Tech Barons may no longer require their earlier anti-competitive practices to maintain their power and influence innovation paths. Thus, the policy challenge is not cataloging earlier anti-competitive behavior but anticipating the Tech Barons' future anti-competitive tactics to colonize new platforms and expand their ecosystem. The new policy tools must be specific enough to identify anti-competitive practices but sufficiently flexible to adjust to changing market realities. Policymakers, however, are ill-equipped to accurately predict the Tech Barons' future anti-competitive moves. So, they mostly shoot where the duck was, not where it is heading. Thus, even with the Digital Markets Act, Digital Services Act, and Data Act, Europe will still feel the ripple effects of toxic innovation. Ditto for the U.S. (even if Congress finally enacted the bipartisan-sponsored bills).

VI. WHAT CAN BE DONE?

There is no simple fix to deter toxic innovation and promote disruptive innovations that actually create value. Instead, our book offers three key principles to guide the design and enforcement of innovation policies:

- First, policymakers must consider the value of the innovation and whether it creates, destroys, or extracts value. Innovation is neither inevitable nor invariably desirable. Since not all innovation increases value, policymakers, and enforcers must inquire about the type of innovation (sustaining or disruptive) and whether it increases or reduces our well-being (that is, whether it destroys, extracts, or increases value).
- Second, policymakers must consider the incentives at stake, which are directly influenced by the ecosystem's value chain. Policymakers must inquire about who's designing the ecosystem and influencing the innovation paths, what are the ecosystem's value chains, and what incentives it fosters. As our book explores, what's good for the Tech Baron is not necessarily what's good for us. And so, one must understand the incentives at play (that flow from the value chain) and ensure these

incentives align with our interests. Every ecosystem is regulated — whether by Tech Barons, informal norms, or laws, rules, and regulations (that incentivize a range of actions and strategies). If policymakers assume that the marketplace is naturally self-regulating and that the market participants' incentives will always align with our interests, they are ill-informed.

- The third principle is the *diversity of innovation*. The antitrust policies should promote an effective competitive process that enables disruption and innovation plurality and offers Tech Pirates a viable opportunity to prosper. The diversity of innovation paths is crucial for future prosperity. We cannot predict who will emerge as the next disruptor, given their high rate of failure and the evolutionary selection on which we rely to ensure that the right innovations prosper. But we can hedge our bets by fostering a plurality of innovators and the ensuing collision of ideas from different fields.

We illustrate how the Value, Incentives, and Diversity principles can inform policy choices on two complementary levels: *first* through Optimization Policies that ensure that the innovation serves society's interests, not the Tech Barons', and second through Innovation Support Policies that sustain and promote Tech Pirates' disruptive innovation through the provision of aid through grants, tax breaks, and other supportive means. One surprising finding is the benefits of investing cities to support innovation.

VII. CONCLUSION

Our message is clear. The current incentives and policies have put the digital economy on the wrong trajectory. Instead of improving our standard of living, the technological advances may prolong (and in some countries worsen) the already significant wealth inequality, reduce our autonomy and well-being, and be used to destabilize democracies. And we can't expect this trajectory to self-correct. Betting on the entrenched Tech Barons, whose incentives are not necessarily aligned with ours, to provide the paradigm-shifting innovation is a terrible bet. We should be betting on and investing in disruptors, cities, plurality, and diversity.



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