

# Institutional Change on Digital Platforms: Temporal Shifts in the Power of Users, Businesses, and States

Sverrir Steinsson

Under what conditions are user-generated digital content platforms responsive to pressures from users, businesses, and states? I propose that digital platforms show different levels of responsiveness to users, businesses, and states over time. Early in a platform's life, the platform is highly sensitive to the demands of users, who have an opportunity to directly shape the institutional characteristics of the platform through the threat of user revolt. The unique power of its users stems from the network logic that underpins the value of the platform. As a platform grows and the size and centrality of its network increase, it becomes more sensitive to pressures by businesses (through boycotts) and the state (through regulation). At the same time, the power of users lessens as collective action problems become more severe and exit threats become less credible. The threat of user revolts has a temporal significance: Unless users alter the institutional architecture of the platform and lock in pro-user institutional characteristics early, the threat of user revolts becomes less consequential as the platform grows. Comparative case studies of Facebook, Wikipedia, Digg, and Reddit provide support for the theory.

User-generated content platforms exhibit substantial variation in their institutional characteristics. On some platforms, users exert considerable power over platform policies, whereas other platforms are unresponsive to user demands. At one extreme, Wikipedia has a highly democratic internal structure and is weakly responsive to outside actors. At the other end, Facebook has a distinctly undemocratic internal structure while showing some responsiveness to outside actors. Reddit occupies a middle ground: Its platform is simultaneously responsive to user demands and mindful of state regulation and business boycotts. What explains this variation? Under what conditions are digital platforms responsive to pressures from users, businesses, and states?

In this article, I propose an explanation for the variation in institutional characteristics across platforms and within platforms over time. Using insights from historical institutionalism, I argue that timing, sequencing, and path dependence play crucial roles in the institutional characteristics of digital platforms. Early in the life of a platform, users exert considerable power because of the platform's fragility and the abundance of exit options for users. If

users are dissatisfied with a platform's operation, they can exit to different platforms; this threat gives users considerable leverage with which they can pressure the platform. Most importantly, users have a unique opportunity to lock in institutional reforms that give them considerable power over the long-term trajectory of the platform. If platforms are not responsive to user grievances, then users revolt, exit, and join alternative platforms that provide a similar, potentially better service.

The power of users lessens as the platform grows and becomes a more central node in the larger platform economy. When the platform becomes large, users face greater collective action problems in protesting its policies, as well as greater exit costs. And when a platform becomes dominant in its space, users face considerable costs in collectively migrating to a different platform. Large setup costs, learning effects, coordination effects, and adaptive expectations lead users to stick with a suboptimal and unresponsive platform because it is too costly to coordinate on an alternative platform.<sup>1</sup> In a reformulation of Albert Hirschman's *Exit, Voice, and Loyalty* (1970) framework, users of large platforms become less able to exercise their "voice" to a meaningful end because the "exit" option is not credible: Users lose the ability to push for change within the platform.

However, large platforms remain responsive to businesses and states. These actors become more important

---

Sverrir Steinsson  ([sverrir.steinsson@gmail.com](mailto:sverrir.steinsson@gmail.com)) is Assistant Professor at the University of Toronto's Munk School of Global Affairs & Public Policy.

doi:10.1017/S1537592724002846

© The Author(s), 2025. Published by Cambridge University Press on behalf of American Political Science Association. This is an Open Access article, distributed under the terms of the Creative Commons Attribution licence (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted re-use, distribution and reproduction, provided the original article is properly cited.

focal points for pressure on digital platforms because they have the means to harm a platform through organized boycotts, lawsuits, or government regulation. This has two implications. First, during these later stages, users focus their protests on businesses and governments, arguing for boycotts and state regulation against the platform. Whereas users were once able to pressure small platforms directly, the only remaining lever of pressure is through intermediaries (businesses and states). Second, other actors in society that are affected by the platforms increasingly try to pressure the platforms through boycotts and government regulation. As platforms become larger, they exert greater social, political, and economic effects, which lead those affected by the platforms to try to alter these impacts. Consequently, users compete with a broader range of actors to influence the platform.

I assess this theory with a comparative case study of Facebook, Wikipedia, Digg, and Reddit. These cases vary in key dimensions. Facebook, Wikipedia, and Reddit consistently grew over time to become dominant platforms in their space. All three organizations catered considerably to user demands early on, but there is variation in the extent to which users successfully locked in institutional features that preserved user power. Early revolts on Wikipedia led to features that placed nearly all power in the hands of the user community; Reddit maintained quasi-democratic characteristics by giving substantial power to volunteer users who run subreddits as moderators; and Facebook removed users' advisory power once the platform became unrivaled. In Digg's case, the organization catered to users early on and had institutional characteristics conducive to collective action, but its inattentiveness to user demands at a key juncture prompted a mass user exit to a smaller but credible competitor platform, Reddit. To assess the plausibility of the theory, I evaluate evidence derived from online archival data, secondary reporting on internal debates among platform management, and, in the case of Facebook, internal communications that were made publicly available in antitrust lawsuits.

This article makes several contributions. First, it provides analytical accounts of the institutional characteristics and transformations of several important digital platforms. These accounts are valuable because these platforms shape our politics, economy, and culture, as well as our everyday life.<sup>2</sup> It is worthwhile for political scientists to understand the internal politics of the platforms, as well as the frequently forgotten early history of the platform economy. In contrast to much existing work on digital technology in political science, which highlights interactions between platforms and states, this article emphasizes the importance of user power in understanding digital platforms. Second, digital platforms can shed light on important debates in the social sciences about governance, revolts, and democracy, as well as political economy.

The richness of data and the speed of interactions in the digital world create opportunities to assess major debates about democratization and social movements in ways that are difficult in nondigital environments. This article's findings are consistent with theories of democratization that see the emergence of democratic institutions as the result of a bargain between weak rulers and a relatively strong population with the means to harm leaders through resistance or exit. The paper also highlights the importance of contingency and lock-in: groups that have a temporary power advantage can lock in their advantages through institutions.

## Digital Platform Organizations and Network Effects

Digital platforms are organizational forms enabled by digital technology that comprise a core that enables add-ons and complementarities (in a technological sense), connect different actors (in a market sense), and engage in governance over the actors and the add-ons (in a political sense).<sup>3</sup> In a technological sense, platforms are "nonliving" blocks of technology that enable add-ons and complementarities, in which a "core" platform is enhanced by a "periphery" of add-ons. The platform is an intermediary that enables individuals and groups to interact either through a marketplace connecting buyers and sellers or, more broadly, a forum where individuals communicate and observe the communications of others. Regardless of whether we consider platforms as foundations for computer engineers to build applications, marketplaces that bring buyers and sellers together, or digital public squares, they are political institutions that engage in governance over the actors who use the platforms. The platforms set and enforce rules governing how actors use platform functions and how actor contributions are integrated to the platforms. They determine what kinds of applications, merchandise, and speech are allowed.

The network logic that underpins digital platforms makes them unique among organizational forms.<sup>4</sup> Consistent with other research on digital platforms, I claim that the value of a platform lies primarily in its *network*, not in the quality of its goods and services.<sup>5</sup> Thus, unlike other firms, platforms seek large network size and centrality, even at a disadvantage to short- and medium-term profitability. The viability of a platform depends on its ability to accumulate a sizable user base and to leverage the size of that user base to accomplish its goals. These goals may or may not be profit-related—Wikipedia and Linux, for example, are organized as nonprofits, whereas others like Facebook and Genius.com are for-profit corporations. The value of the platform is tied to the larger network of actors who have considerable autonomy and contribute value to the platform. The more users who join a platform, the greater the value of the data that can be harvested (Rahman and Thelen 2019; Weymouth 2023); the more

consumers use a platform, the greater the value of the platform to sellers (McAfee and Brynjolfsson 2017; Rochet and Tirole 2003; Tirole 2020); and the more contributors to a collaborative project, the better the project will be (Benkler 2002; Weber 2004). Thus, an inherent dynamic of self-reinforcing growth characterizes the platform model.

As network size increases, a platform becomes more stable and secure, because it can derive benefits from its prominent position in an online system, economies of scale, and positive feedback effects. Once an organization grows to the size of a Google, Reddit, or Wikipedia, it becomes exceedingly difficult for challengers in the same field (other search engines, discussion forums, and encyclopedias) to compete and provide equivalent services (Rahman and Thelen 2019; Weymouth 2023). It is this profound network effect that makes platform companies distinct and why traditional understandings of monopolies cannot be applied to measure the power of platform companies (Gawer 2014; Rahman and Thelen 2019; Tirole 2020; Weymouth 2023). The power of these companies is not necessarily measured by their market size but by the centrality and size of their network in a larger online ecosystem.<sup>6</sup> Once a platform achieves size and centrality in the ecosystem, it exerts considerable power over rival traditional businesses, as well as other digital platforms, which come to depend on the central platform to operate (Atal 2021, see also Cennamo and Santalo 2013; Cutolo and Kenney 2021; Gawer and Cusumano 2002; Rietveld, Ploog, and Nieborg 2020). Thus, there are considerable first-mover advantages and winner-take-all dynamics in the digital platform sphere.

This logic leads many digital platforms to offer their services to users for free (Fourcade and Klutetz 2020; McAfee and Brynjolfsson 2017). For example, the more people who use Google, the better its services to users and advertisers will be. Zuboff (2020, 68) describes this feedback effect as follows: “Search needed people to learn from, and people needed Search to learn from. This symbiosis enabled Google’s algorithms to learn and produce ever-more relevant and comprehensive search results. More queries meant more learning; more learning produced more relevance. More relevance meant more searches and more users.” This feedback effect was essential to Google becoming dominant among search engines.

Economists describe these markets as “two-sided” or “multi-sided” because the platform is an intermediary that simultaneously serves multiple actors. A strictly one-sided organization, such as a standard grocery store, buys a good and sells it to customers (Evans and Schmalensee 2016). A two-sided platform, in contrast, acts as an intermediary between two distinct groups of platform participants—for example, consumers and sellers—whose participation on the platform provides each other with benefits. In a strictly two-sided market, the more potential consumers exist on

one side of the market, the more valuable the platform becomes to potential sellers on the other side of the market (Rochet and Tirole 2003; Tirole 2020). In a multi-sided platform, multiple distinct groups of participants provide benefits to other participant groups (see Evans and Schmalensee 2016).

In the case of Facebook, it is difficult for users to migrate to other platforms that provide an equivalent service because of collective action and coordination problems. In other words, users who dislike Facebook policies and features may remain on the platform because they are unable to coordinate the departure of their friends to a different platform. An internal 2011 Facebook survey of users found that users of the recently created competitor Google+ had “a hard time convincing their friends to participate because 1/there isn’t [*sic*] yet a meaningful differentiator from Facebook and 2/ switching costs would be high due to friend density on Facebook” (*States v. Facebook* 2020, 15). In the case of Wikipedia, users who disapprove of aspects of the encyclopedia could in theory “fork” the entire encyclopedia and set up a new version. A fork is when a platform makes its software free and open-source, thus allowing users to use the platform’s software to set up a new platform without the involvement of the original developer. However, the new platform is extremely unlikely to be successful, particularly as the original platform increases in size.

### ***Digital Platforms as Political Institutions***

Despite the prominence of these platforms in everyday life and their increasing political salience,<sup>7</sup> political science research has not yet adequately addressed digital platforms.<sup>8</sup> Instead, information scientists, economists, sociologists, and legal scholars are conducting most of the scholarly research on digital platforms. Existing research examines platforms as unique organizational forms and increasingly important market actors. Even though it focuses on how platforms as organizations coordinate actions by a large set of actors and how they are distinct political-economic actors, one literature review stated that “platform companies remain undertheorized within political economy” (Atal 2021, 336).

Even among political economists, much of the existing research emphasizes the interactions between the platform companies and “external” actors, such as states, traditional businesses, and society at large. Platform companies and nonprofit platforms are rarely studied as political systems and governance systems in their own right. When attention is paid to the internal political dynamics of platforms, it often unduly emphasizes the platforms’ hands-off and libertarian approach to content and promotes optimistic and utopian visions of how collaboration occurs within platforms (Acquier 2018; Benkler 2002; Reagle 2010). Many research efforts take the principles of hacker culture

and the open-source movement, which stress the lack of governance and hierarchy, at face value.<sup>9</sup> As Carla Ilten (2014) writes, "Much of the discourse about peer-to-peer platforms still focuses on platforms that seem to meet the ideal of cyber-communism and practical anarchism—a perceived *absence* of management."

In contrast, I maintain that these platforms are highly contested internally, as the actors who own the platforms, work for the platforms, use the platforms, or are otherwise affected by the platforms seek to alter the platforms' functions. Actors challenge how Facebook treats misinformation, how Reddit handles hate speech, what websites Google should prioritize in search results, what recommendations YouTube should provide viewers, and how subjects are presented on Wikipedia. Actors also contest how these platforms treat the rights of users, customers, merchants, and staff. In short, the *internal* politics of these platforms matters.

## A Temporal Theory of Institutional Change

The logic underpinning for-profit platforms, as well as nonprofit platforms such as Wikipedia, is that one side of the "market" (usually "readers," "viewers," and "consumers") must be attracted to the platform for it to be worthwhile to the other side of the "market" (usually "advertisers," "sellers," and "volunteer contributors"). This means that platforms go to great lengths to appease one side of the market, such as providing free services to regular users (e.g., Facebook), enticing influential users to join and remain on the platform (e.g., giving monetary rewards to content creators on YouTube, Snapchat, and TikTok), and implementing governance rules that make the platform attractive to users (e.g., prohibitions on offensive content).

This article argues that platforms in their early stages are most responsive to users. This is when they are attempting to expand its network and are highly vulnerable to challengers and competitors. During this period, owners fear that users will exit, particularly in situations that enable coordinated exit. Thus, platforms are extremely responsive to user grievances because users have credible exit options that raise the power of their voice. However, as the platform becomes larger and more stable, and exit options narrow, threats to exit lose their credibility. Users become more loyal, and platforms have weaker incentives to implement institutional changes in response to user demands.

Large setup costs, learning effects, coordination effects, and adaptive expectations lead users to stick with a sub-optimal platform (see Pierson 2000; Shapiro and Varian 1998). As the platform grows in network size and centrality, the setup costs of creating a new institution increases; it

becomes more costly for users to learn to operate alternative platforms; it becomes harder for users and other relevant actors to coordinate around a new platform; and actors increasingly orient their behavior around the dominant platform. In other words, it becomes exponentially more difficult for users to credibly threaten the survival of the platform through a user revolt.

H1: *Platforms are more responsive to users in the early years of the platform.*

There is a major exception to this trend: If users successfully demand that the institutional architecture of platforms locks in user power at critical early junctures, they can retain leverage even as the platform grows and begins to face less competition from other platforms. The institutional architecture formalizes involvement by the user community in governance of the platform, raises the costs for the platform of reneging on user rights, creates a focal point of coordination, and generally makes it easier for users to engage in collective action. The restraining power of this institutional architecture is like that of representative institutions in democratic political systems. Some platforms have institutional features that are akin to parliaments and judiciaries, as well as those that disperse power throughout the platform in ways akin to feudalism. Platforms may also have features that permit users to sabotage the functionality of the platform by filling forums and feeds with spam or by turning off popular forums and feeds, which is akin to strike actions by organized labor. One of the unique ways in which platform users can restrain platform owners' power is through the ability to fork, using the platform's software to set up a new one without the involvement of the original developer.

H2: *Platforms with pro-user institutional architecture remain responsive to users over time.*

As platforms gain network dominance, they show greater responsiveness to threats from businesses and states. These actors become more important focal points for pressure because they have the means to harm a platform through organized boycotts, lawsuits, or government regulation. This has two important implications. First, users focus their protests on businesses and governments, arguing for boycotts and state regulation against the platform. Whereas users were once able to pressure small platforms directly, the only remaining lever of pressure is through intermediaries (businesses and states). Second, other actors in society who are affected by the platforms increasingly try to pressure the platforms through boycotts and government regulation. As platforms become larger, they exert greater social, political, and economic effects, which leads those affected by the platforms to try to alter these impacts.



H3: *As platforms become increasingly socially and economically consequential, they show increased responsiveness to businesses and states.*

These explanations for institutional change on platforms draw on political science research on democratization that links the creation of democratic institutions to the presence of powerful groups with the means to harm rulers through resistance or exit (Bates and Lien 1985; Deudney 2007; Moller 2014; Stasavage 2016). For example, rulers in medieval Europe were more likely to establish representative institutions when they faced the threat of external war and when elites in the polity had mobile wealth and exit options (Bates and Lien 1985; Kenkel and Paine 2023; Stasavage 2016). Representative institutions were more likely to emerge in small polities because of lower collection action costs and less power asymmetry between the ruler and the governed (Deudney 2007, 54, 127–29). And expansion of the electorate was more likely to occur in labor-scarce New World colonies as a means to attract and retain colonists (Engerman and Sokoloff 2005; Kennedy 2022; Nikolova 2017).

Similarly, the empirical section of this article examines how democratic institutions formed on Wikipedia, stripping powers away from “benevolent dictator” Jimmy Wales; how the unresponsiveness of Digg to user demands led to its fall and to the rise of Reddit; how Reddit’s quasi-democratic features gave it the edge in the competition against Digg and gave powerful users the means to restrain what Reddit leadership could do; and how Facebook was very responsive to its users’ demands when it was a growing platform in the 2000s, but not in the 2010s and thereafter when it was dominant.

This article offers a parsimonious explanation for institutional change on digital platforms.<sup>10</sup> It should thus carry explanatory power and be generalizable to more cases than those studied.<sup>11</sup> The theory outlined here does not make deterministic claims but probabilistic ones. It makes “more likely” and “less likely” claims about the implications of network size for the power of users, businesses, and states. This means that users could successfully stage a user revolt on a digital platform with a large network size, but doing so becomes *harder* as the network size increases.

The first scope condition of the theory is that it only applies to digital platform organizations. This scope condition arises from the importance of network effects, which are uniquely applicable to these organizations. A second scope condition is that the theory cannot explain institutional dynamics on platforms that purposely seek to remain small and exclusive; for example, a small online discussion forum. A third scope condition is that this theory holds in democratic countries where governments permit free speech and free enterprise. In authoritarian countries, the dynamics of the platform economy may be different, because governments severely constrain speech

and markets, which affects what kinds of digital platforms can emerge. A fourth scope condition is that the theory might only apply to digital platforms where the users provide free content to the platform. The extent to which the theory applies to digital platforms that solely entail monetary transactions between sellers and buyers should be assessed in future studies.<sup>12</sup>

The independent variable is *network dominance*, and the dependent variables are *user power*, *business power*, and *state power*. Network dominance is measured as the size and centrality of a platform within larger networks. This is necessarily a qualitative and multifaceted relational variable that captures the dependence of users and other participants in the platform ecosystem on one platform versus competing platforms. The power of users, businesses, and the state are measured by the degree to which these actors can compel digital platforms to take actions that the platforms otherwise would not. These demands can entail clearly stated threats to take actions against a platform, as well as the implicit risk that the actors will act against the platform even if they do not specify so in advance.<sup>13</sup> Internal communications among platform staff and their responsiveness to perceived user grievances provide important pieces of evidence to gauge user power.

## Research Design

This article assesses these hypotheses using cases from four platform organizations—Wikipedia, Facebook, Digg and Reddit—in which users provide content and value to the platforms for free. The four platforms are chosen because they are important, understudied, and varied.<sup>14</sup> Each case has a vast number of observations with which to assess the theory.<sup>15</sup> The cases allow for generalizability but that there are only four cases also provides descriptive richness and maintains internal validity. I conducted a within-case analysis to examine the same case over a long stretch of time, thus holding key aspects constant while observing variations in the independent and dependent variables. The cross-case comparison explored whether the expectations of the theory held true for dissimilar platforms (see George and Bennett 2005, chap. 8; Goertz and Mahoney 2012, chap. 7).<sup>16</sup>

Each of the four platforms experienced user revolts, when users openly and collectively protested their policies and functions. For the purposes of this article, a user revolt was considered successful when the threat of or implementation of a revolt led the platform to adjust its policies in line with those of the protestors. In those cases, the platform management *responded* to successful user revolts with *institutional changes* that were intended to reduce user grievances.

The article assesses the theory through process-tracing of each platform over its lifespan. It relies on a variety of data sources: online archival data, contemporaneous news reporting, statements by the platform management,

secondary scholarly publications, and evidentiary documents from legal cases involving the platforms (which revealed internal platform deliberations). The observable implications of the theory are that each platform offers quick and strong responses to user revolts in the early years of the platform, a period during which business boycotts and state intervention are nonexistent or relatively minor. As the platform grows larger, it offers weaker and delayed responses to user revolts, while responding quickly to business boycotts and threats of state intervention. Furthermore, internal deliberations among the leadership in the platform reflect this temporal variation. The one exception to these temporal variations is the existence of institutional arrangements that enable users to engage collective action and compel the platform, even as the platform grows. The next several sections provide detailed narratives of key episodes that adjudicate the validity of the theory.

## Wikipedia

Wikipedia, founded in 2001 by Jimmy Wales and Larry Sanger, is an online encyclopedia built on an open-source peer collaboration organizational model.<sup>17</sup> The encyclopedia is free to use, and anyone can edit it. There are more than 46 million registered Wikipedia accounts, of which approximately 130,000 are active (Wikipedia 2024). Wikipedia is one of the most popular websites in the world: The English Wikipedia is frequently at the top or near the top of Google searches for a known person or event in the English language. Wikipedia is widely perceived as a trustworthy and reliable source of information, giving it considerable power in public discourse and ideational diffusion (Bruckman 2022; Steinsson 2024).

This section examines the power of users, businesses, and states over Wikipedia's lifespan by focusing on three user revolts: (1) the 2002 revolt against advertisement on the platform, (2) the gradual removal of Wales's powers over the period from 2003–10, and (3) the 2006 conservative revolt. The first two revolts were successful in ushering in pro-user institutional features and nullifying potential influence by businesses and states. These revolts made Wikipedia wholly responsive to its users and wholly unresponsive to outside pressures. They succeeded because of credible threats of exit by core editors who made effective use of Wikipedia's internal institutions. The third revolt failed, yet the reasons why it did so are consistent with the mechanisms of the theory. Its failure can be traced to the outsider status of the revolting users and their inability to organize their revolt through Wikipedia's internal institutions.

### *The 2002 Revolt against Advertisements*

On February 26, 2002, an influential editor on the Spanish Wikipedia created a "fork" of Wikipedia, establishing *Enciclopedia Libre*. He did so because he wanted

Wikipedia to commit to preventing advertising on the platform and to change its domain from .com to .org. Before this fork, Wales had equivocated about allowing advertising on the platform, making comments that the Spanish editor had interpreted as an intention to introduce ads on the platform. He had contributed extensively to Wikipedia pages and was on good terms with many members of the then-small Spanish editor community. Because of his stature in the community and the small number of his editor peers, he was able to persuade the core of editors on Spanish Wikipedia to join him in the creation of *Enciclopedia Libre* (Jemielniak 2014; Reagle 2010; Tkacz 2015). The new fork was an existential threat to Wikipedia. A month after the fork's creation, *Enciclopedia Libre* had twice as many pages as Spanish Wikipedia (Wikipedia 2022). The success of the fork threatened to fragment the open-access online encyclopedia space and to create a more successful version of Wikipedia. The survival of Wikipedia was at stake.

Six months after the fork, *Enciclopedia Libre* had approximately six times the number of entries as Spanish Wikipedia (Wikipedia 2022). At that time, Wales relented and committed to prohibiting ads on Wikipedia. The Wikipedia domain changed from .com to .org, entailing a commitment to the nonprofit status of Wikipedia. Shortly thereafter, *Enciclopedia Libre* was largely abandoned, and the Spanish editors returned to the fold (Jemielniak 2014; Reagle 2010; Tkacz 2015). The commitment to prohibiting advertisements on Wikipedia had serious implications, because it prevented the encyclopedia from becoming profit-driven and beholden to advertisers and other business interests. In 2013, ad space on Wikipedia had been valued as high as \$5 billion annually (Chozick 2013).

### *The Removal of Jimmy Wales's Powers*

Over the course of Wikipedia's lifespan, Jimmy Wales gradually lost power. Although he was "the final authority" in Wikipedia's early days (Jemielniak 2014, 159),<sup>18</sup> he effectively lost nearly all his power by 2010. Wales's decision to create a dispute settlement body in 2003 to handle the large numbers of disputes that he could not personally settle due to time constraints was a prominent turning point in Wikipedia's history. Before creating this body, Wales had the sole authority to settle disputes by imposing sanctions against editors. Wales handpicked the members of this body, the "Arbitration Committee," who held limited terms. Formally, Wales had the power to appoint members of the committee, but in practice, his appointment powers were quickly curtailed.<sup>19</sup> In effect, the Arbitration Committee became Wikipedia's Supreme Court.

After creation of the Arbitration Committee, the expectation was set that Wales would not use his powers in ways inconsistent with community norms. In 2009, however,

he prominently violated these norms when he used his blocking powers to ban a popular administrator on the English Wikipedia. The action sparked a furor among Wikipedians. Ultimately, the Arbitration Committee, the very body that Wales had created years earlier, rendered a judgment that Wales had failed to follow Wikipedia guidelines on blocking policy. Subsequently, the administrator's position was unbanned, and Wales relinquished his own blocking power. Jemielniak (2014, 163) writes that this moment "symbolically marks the moment when the Arbitration Committee started to exert its authority over Wales, rather than the other way around." Shortly thereafter, Wales also relinquished his power to ignore the outcomes of advisory elections for members of the Arbitration Committee, turning his role of appointing arbitrators into a purely ceremonial one (164).

A situation in 2010 brought Wales into conflict with the community yet again. That year, Fox News reported on the presence of pornographic imagery on Wikipedia, including purported child pornography. Wales saw this situation as a threat to Wikipedia's reputation. Rather than allow Wikipedia's community to resolve whether to remove the content, Wales acted unilaterally to remove it and ignored community discussions. This sparked a user revolt, leading approximately 75% of participants in a Wikipedia quorum vote to strip Wales of his power. Numerous prominent editors threatened to exit the Wikipedia project unless Wales acceded. Wales ultimately relinquished virtually all his remaining powers. Thus, less than ten years after the creation of Wikipedia, Wales had lost all but his ceremonial powers.

### **2006 Conservative Revolt**

The success of the Spanish fork stands in contrast with two attempts in 2006 to fork Wikipedia because of conservative users' disapproval of the perceived ideological bent of Wikipedia content. Conservative users created two separate encyclopedias, *Conservapedia* and *Metapedia*. However, these forks were not threats to Wikipedia because, by then, it had become large and stable: It was a key focal point for individuals interested in building encyclopedic content. Fragmenting the online encyclopedic space would require the aggrieved conservatives to persuade a mass of core Wikipedia's users to exit, which they were unable to do. More importantly, these two user revolts were not driven by top Wikipedia editors, but rather by new and inexperienced editors who had sought to alter Wikipedia content: They had no clout in the Wikipedia community and had little ability to persuade similar-minded Wikipedia editors to exit. In other words, they did not use Wikipedia's internal institutions to coordinate collective action.

In theory, the successful forking of Wikipedia over conservative grievances might have been a threat to

Wikipedia. It could have delegitimized Wikipedia as a biased source and fragmented the online encyclopedia space along ideological lines. However, because the revolts occurred late in Wikipedia's development, were led by outsiders and were organized outside Wikipedia's internal institutions, they were not credible threats to Wikipedia and did not lead to institutional changes on the platform. Had this revolt occurred earlier and been led by top insiders, it might have prompted Wikipedia to introduce policies to guard against purported liberal or anti-conservative biases.

## **Facebook**

Facebook is a social networking platform founded in 2004 by Mark Zuckerberg and several fellow Harvard University students. By 2008, Facebook reached 100 million active users and surpassed its main competitor Myspace in popularity. By 2012, it reached a billion active users and held its initial public offering. By 2015, Facebook had the most active users by platform and was among the top five largest platform companies in terms of market value (Evans and Gawer 2016).

This section examines the power of users, businesses, and states over Facebook's lifespan, with a focus on three sets of cases: (1) user revolts during Facebook's early years, (2) Facebook's introduction of direct democracy, and (3) post-2016 institutional changes in response to pressures from businesses and states. These cases demonstrate constant jostling between Facebook's management and the user base in the early years of the platform, as Facebook tempered its ambitions to increase its profitability and abstained from controversial policy changes or aborted attempted changes to the platform out of fear that users would revolt. However, as soon as Facebook gained market dominance, it became unresponsive to users while showing increased concern for pressure by businesses and interventions by states.

### **User Revolts in Facebook's Early Years**

Early on, Facebook demonstrated considerable responsiveness to users. Zuckerberg was so concerned about user satisfaction that he rejected ideas to introduce advertisements and other commercial content on Facebook in its early years, even though it would have created short-term profitability for the company (Kirkpatrick 2010). An internal 2008 Facebook report found that one of the pillars of Facebook's success was its responsiveness to user demands for privacy and control of their own data (*States v. Facebook* 2020, 23). Its responses to user revolts in the early years of Facebook demonstrate how responsive Facebook was to user demands and how spooked Facebook was at the possibility of losing users to then-viable competitors.

In 2006, users revolted when Facebook launched its news feed function because of concerns that the content

posted on an individual's page would appear to people outside the friend network. The concerns were misguided—users' privacy settings remained the same—but demonstrated that a large section of the user base would hold Facebook accountable for infringing on their privacy and that users would be hostile to any restrictions of their rights (Arrington 2006). More than 700,000 users joined protest groups over the news feed change (Story and Stone 2007). Zuckerberg responded quickly to the concerns, pledging to work quickly to set up “better privacy controls” (Facebook 2006; *The Guardian* 2006).

In 2007, a second large user revolt occurred. It was in response to the introduction of the “Beacon” program whereby Facebook automatically displayed individuals' purchases and other online activity in their news feeds without their approval. Protestors, which included the progressive organization MoveOn.org, targeted Facebook and its partner websites in the program. The protests got one major web retailer to quickly stop participating in the project (Story and Stone 2007). Less than a month after the introduction of the advertising tool, which had been intended to make the company profitable, Facebook rolled back the feature.<sup>20</sup> Facebook executives were taken aback by the protests and misjudged what the user base would accept (Vaidhyanathan 2011, 91).

In 2009, users revolted again in response to changes to the Facebook terms of service, which would have allowed the company to retain data from users who deleted their accounts. The furor again led Facebook to backtrack on the change (BBC News 2009; Parr 2009). In 2010, yet another revolt occurred over changes to privacy settings tools on Facebook. The change made user data, such as who was friends with whom and the things that they liked, public, and it was impossible to opt out of this change (Van Buskirk 2010). Facebook ultimately backtracked again, allowing users to opt entirely out of the data sharing (Kobie 2010).<sup>21</sup>

By 2010 and early 2011, it was clear that Facebook's main competitor, Myspace, was precipitously declining, leaving Facebook as the dominant actor in the space. Between February 2010 and February 2011, Myspace's traffic decreased 44%, and advertisers stopped entering into long-term agreements with the platform (Steel 2011). Emboldened by its newfound dominance, Facebook planned to roll back user rights. In the summer of 2011, Facebook began implementing a policy change to remove users' ability to untag themselves in photos. However, Facebook shelved these changes due to reports that Google was creating a rival platform, Google+. In internal email discussions, Facebook COO Sheryl Sandberg wrote, “For the first time, we have real competition and consumers have real choice... we will have to be better to win” (*States v. Facebook* 2020, 27). One Facebook executive said that the “most urgent priorities in response to the competitive threat from Google+” were to “improve site stability/

performance quality to shore-up our user experience,” and another one said, “IF ever there was a time to AVOID controversy, it would be when the world is comparing our offerings to G+” (27–28).

Facebook engaged in surreptitious anti-user actions during this time, but they all revolved around the ability of apps to integrate Facebook features with those of Google+ (such as importing Facebook contacts into Google+). These actions were intended to make collective action harder. One Facebook employee criticized the move as “anti user” and anticompetitive in internal communications with colleagues (Federal Trade Commission 2021, 44–45).

### ***Direct Democracy on Facebook***

To avert unexpected user revolts in response to changes in the platform architecture, Facebook implemented user referenda and enabled direct input on proposed changes. In the aftermath of the 2009 user revolt, Facebook pledged to publish draft versions of its proposed rule changes and allow input by the community. Decisions by the community would be binding if 30% of all active registered users participated in the referenda. The 30% threshold proved to be problematic because nowhere near that large a percentage of Facebook users could be motivated to participate. The first vote in 2009 had approximately 0.3% turnout, and subsequent referenda had similar turnout levels. In 2012, Facebook asked voters to take a position on new policy changes that would abolish the referenda. Eighty-eight percent of voters voted against the proposed change, but because the voters comprised less than 0.1% of the total Facebook population, Facebook went ahead with it (Robertson 2018). Facebook's decision to scrap the referenda coincided with internal Facebook research that showed in early 2012 that Google+ no longer posed meaningful competition (*States v. Facebook* 2020, 27–28).

### ***Responsiveness to Outside Actors***

Unlike in the early years of Facebook, when reporting was replete with stories about user revolts on a regular basis, news coverage in the last decade has focused primarily on pressures applied to Facebook through organized boycotts or by political actors, as well as “revolts” by Facebook staff.<sup>22</sup> In the aftermath of the 2016 election and Facebook's role as a vector for misinformation and hate speech, as well as in fomenting political violence, Facebook faced concerted pressure by businesses and politicians to change its policies. Facebook responded by making greater use of fact-checking and banning various figures who promoted “violence and hate.”

The changes implemented by Facebook reflected a balancing act between different political interests. Facebook attempted both to appease liberals who did not want



Facebook to be a vector of misinformation and conservatives who bemoaned censorship. Although it implemented changes that made it appear as if the platform were fact-checking misinformation and enacting restrictions on accounts that repeatedly promoted misinformation, violence, and hate speech, Facebook regularly made exceptions for popular right-wing websites and figures. Separate batches of leaked materials showed that conservative figures received preferential treatment (Dwoskin, Timberg, and Romm 2020; Seetharaman 2018; Silverman and Mac 2020; Solon 2020; Timberg 2020).

Amid the 2020 George Floyd protests, businesses organized a major boycott of Facebook because of its policies on hate speech. In response, Facebook quickly expanded hate speech prohibitions on the platform. However, maintaining its delicate balancing act, Facebook carved out exceptions for hate speech by prominent political figures, which allowed posts by President Donald Trump to remain (Isaac and Frenkel 2020). Andrew Marantz (2020) described Facebook's logic as follows: "If Facebook were to ban Trump, he would surely try to retaliate with onerous regulations; he might also encourage his supporters to boycott the company."

## The Fall of Digg and the Rise of Reddit

Digg was founded in 2004 by Kevin Rose, and Reddit was founded one year later by Steve Huffman, Alexis Ohanian, and Aaron Swartz. Both platforms are feed aggregator websites with discussion forums. Users discover, share, and recommend web content on which the broader community of users "dig"/"upvote" or "bury"/"downvote." On Reddit, users contribute links or comments to "subreddits" (forums dedicated to topics), whereas Digg users did the same for specific categories such as technology, science, and business.

Both platforms had institutional features that gave considerable power to users, because the mission of both was to identify the most interesting content through crowdsourcing and aggregation. User power, however, was institutionalized in different ways on the two platforms. On Digg, top users—those who provided a lot of highly upvoted content—were given a privileged position and could use their clout to organize collective action. To incentivize quality content, Digg created a reward system for top contributors. Thus, top contributors had greater sway than other users in the platform's algorithm, and from the outset, Digg had a structure whereby users had considerable power and could easily coordinate exit, if they wanted to. On Reddit, in contrast, the main source of user power lies in the hands of "moderators," volunteer contributors who set up and govern subreddits. A plethora of subreddits exist on Reddit, covering every conceivable topic from baby corgis to political science. The moderators are to some degree responsive to subreddit users, because

users who are upset about the moderation can set up a new subreddit devoted to the same topic.

Both platforms had to engage in balancing acts to simultaneously manage disputes between users, monetize the platforms, avoid lawsuits, and avoid government regulation. Of the two platforms, Digg had a head start and was a clear favorite to become dominant in this space. However, it failed to be sufficiently responsive to user demands. Digg reached its peak in 2010 and subsequently saw most of its user base migrate to Reddit. By May 2010, Reddit had become the bigger platform with 9.2 million unique visitors (up from 1.7 million in January 2010), compared to Digg's 7.3 million visitors (Metz 2012).

This section examines (1) Digg's early user revolts and eventual collapse, (2) subreddit moderator revolts on Reddit in 2015 and in 2023, and (3) censorship by Reddit of its subreddits since 2011. These cases demonstrate how both platforms were responsive to user demands early on and had institutional characteristics conducive to collective action. However, Digg's inattentiveness to user demands at a key juncture prompted a mass user exit to Reddit. As a dominant actor in this space, Reddit has been somewhat responsive to user demands when they credibly threaten collective action, but it has otherwise only been responsive to the threat of business boycotts and state action. This is different from the early years of both platforms, when they were fully beholden to user demands, even risking lawsuits and violating laws to appease users during their platforms' growth phase.

### *User Revolts on Digg*

Digg was responsive to early user rebellions. In 2007, users on Digg shared an illegally obtained processing key for HD-DVD, which made it easier to copy HD-DVD discs. The sharing of the HD-DVD key was copyright infringement, creating a legal liability for Digg. The IP owner sent Digg a "cease and desist" letter, which led Digg to remove all mentions of the code. This prompted a user revolt, as users kept sharing the code and remarking on the controversy. Digg subsequently reversed its decision. Kevin Rose, the founder of Digg, wrote to the community that Digg removed the content to "avoid a scenario where Digg would be interrupted or shut down.... But now, after seeing hundreds of stories and reading thousands of comments, you've made it clear. You'd rather see Digg go down fighting than bow down to a bigger company. If we lose, then what the hell, at least we died trying" (NBC News 2007).

Throughout its history, Digg sought to strike a balance between elite and common users. Digg introduced changes at various points that were intended to satisfy different elements of the user base. Top users' privileges were a source of tension on the site. Allegations that top users engaged in canvassing, vote rigging, and paid

contributions sparked a user revolt, which led Digg to alter its algorithm to reduce the weight given to the content provided by top users and to make it easier for common users to contribute content and have it rise to the top. When top users on Digg threatened to leave because of the algorithm change, Digg's leadership set up a video call with the top users and weekly townhall meetings where users could ask questions of the Digg leadership. These actions reflected responsiveness toward the user base.

Digg's downfall occurred in 2010. That year, its Version 4 update overhauled the user interface of the website, allowing publishers to auto-submit content on Digg; previously, users could only do so manually. A key driver behind the overhaul appears to have been a desire by Digg management to make the company profitable in advance of a sale. The low valuation of Reddit in its 2006 sale to Condé Nast led Digg management to try the new tack of allowing prominent publishers to auto-publish on the platform (Rose 2021).

In its deliberations ahead of launching Version 4, Digg had included top users, who strongly criticized the beta version that they tested. Nonetheless, Digg defied the top users and pushed ahead with the overhaul. The new version prompted a massive user revolt. Users subsequently used the features of the platform to criticize the changes and credibly threatened to exit by increasingly sharing links to Reddit on Digg. Digg failed to heed the demands of the users and refused to revert to the old version. Consequently, Digg users collectively coordinated an exit to Reddit. One reason why Reddit was a popular destination for the rebels was its perceived user freedom and self-governance. Thus, Reddit succeeded because of the failure of Digg to respond to user demands.

### ***Subreddit Moderator Revolts***

Moderators of each subreddit have the power to disable their subreddits, and one way in which redditors hold Reddit management accountable is by disabling the many subreddits that Reddit comprises by making them "private" or "restricted." These blackouts could have a substantial impact on the value and functionality of Reddit if many popular subreddits were disabled—just as if a printed newspaper were to lose numerous sections, the finished edition would be incomplete and unsatisfying.

In 2015, moderators of major subreddits on Reddit blacked out their subreddits in disapproval of Reddit's decision to fire Victoria Taylor, a popular administrator and Reddit staff member, as well as the firing of another Reddit staff member who was recovering from cancer. Redditors called for Reddit CEO Ellen Pao to step down. Pao wrote a letter of apology to the community and ultimately resigned (Abad-Santos 2015). In 2017, moderators of some large subreddits staged a blackout over Reddit's hiring of Aimee Knight as an administrator. The

protest centered on Knight's support for her father, who was convicted of raping and torturing a child. Reddit CEO Steve Huffman shortly thereafter ended Knight's employment (Robertson 2021).

In 2023, moderators of many subreddits blacked out their subreddits to protest plans by Reddit management to charge users for using its application programming interface (API), which up until then had been freely accessible, and to shutter third-party apps. This was part of a larger plan to increase the profitability of Reddit by stopping tech companies from scraping AI training data for free (Zeff 2024). Reddit management opted to weather the storm, rather than give in to rebel demands. Reddit CEO Steve Huffman tried to delegitimize the revolt by comparing the moderators to "landed gentry" and highlighting how most ordinary redditors neither used third-party apps nor cared about API pricing (Serrano 2023). Huffman called for "more democracy" and threatened to replace the protesting moderators, whom he argued were not acting in line with the preferences of ordinary redditors (Serrano 2023). The protest was costly to Reddit, but the low salience of the issue to ordinary redditors may help explain why Reddit management considered a large-scale user exit unlikely and why they opted to ignore the moderators' demands. Ultimately, the revolt failed.

### ***Reddit's Censorship of Subreddits***

There are limits to the power of user discontent on Reddit. One controversial aspect of Reddit has been its relatively hands-off libertarian approach to content on the platform. This has been a point of contention among users who disapprove of subreddits that are vectors for harassment and hate speech, as well as disreputable and illegal forms of pornography.

Even though the vast majority of redditors may disapprove of sharing a platform with groups that engage in hate speech and harassment, it has proved virtually impossible for users to organize a revolt to change the editorial and curation policy of Reddit. This may be because a revolt requires a large degree of coordination among many users: The users would have to agree on what the editorial policy should be, which subreddits should be prohibited and which should be allowed, and what action should be taken to pressure the Reddit management. This is in stark contrast to the Pao situation, in which a simple case of unjustified firings led redditors to make simple demands: Pao must resign. It was easier to organize around this focal point.

Reddit's history with controversial subreddits indicates that the organization is far more responsive to media coverage than to the user community. Media coverage of the moral and legal pitfalls of Reddit has implications for whether businesses want to advertise on the platform and whether the organization will be dragged into legal

quagmires. The first time that Reddit effectively censored a subreddit was its removal of *r/jailbait*, a subreddit organized around sexualized and pornographic photos of underage girls. The existence of this subreddit was contentious within the user community. In September 2011, CNN's Anderson Cooper ran a report about the subreddit, bringing widespread "outside" attention to the kinds of content that thrived on Reddit. Cooper's report featured an official statement from Reddit's management defending the policy that allowed the subreddit to exist. However, less than two weeks later, Reddit decided to ban the subreddit (Popkin 2011; Smiley 2012). The decision to ban this specific subreddit—but not other subreddits that have similar content—indicates that the decision was motivated by media scrutiny. After all, shortly after *r/jailbait* was banned, clone versions of the subreddit popped up and were allowed to stay.

A similar pattern can be seen with other subreddits that may upset the broader Reddit community but do not get banned except after media scrutiny.<sup>23</sup> The sizable subreddits *r/beatthewomen* (banned in 2014), *r/creepshots* (banned in 2012), *r/fatpeoplehate* (banned in 2015), *r/gore* (banned in 2019), *r/watchpeopledie* (banned in 2019), *r/TheFappening* (banned in 2014), *r/pizzagate* (banned rapidly after its creation in 2016), *r/greatawakening* (a QAnon subreddit banned in 2018), and other subreddits with titles including racial slurs followed similar patterns as with *r/jailbait*: The bans of the subreddits coincided with negative media reporting, and little effort was put into stopping similar "clone" subreddits (Clark 2019; Rogers 2015). These clones were apparent to Reddit users but evaded further media scrutiny.

The most consequential case of subreddit censorship was the *r/The\_Donald*, a very large pro-Trump subreddit that frequently appeared on the frontpage of Reddit. Hate speech and harassment were common on the subreddit, but Reddit management did not act against the subreddit until 2019 after it included targeted threats of violence against police and politicians in Oregon (Vigdor and Chokshi 2019). Reddit management took the half-hearted step of "quarantining" *r/The\_Donald*, which meant that the subreddit continued to exist but users who did not subscribe to it could not see it. It was not until June 2020, amid the George Floyd protests, that Reddit took the step of banning *r/The\_Donald* amid reporting about racism and harassment on Reddit (NPR 2020).

## Discussion

This section briefly summarizes the main findings from the preceding empirical sections and links key components from the four case studies.

In the case of Wikipedia, the successful revolts against advertisement and Wales's overreach indicate that elite users leveraged their value to the encyclopedia and their ability to coordinate collective action to get Wikipedia's

founder Jimmy Wales to surrender a substantial part of his power and to create institutions that ensured self-governance by the user base. Crucially, this happened early in the platform's life when Wikipedia was not yet a stable and successful platform. Users who control key levers of power on Wikipedia have subsequently been able to influence decision making by the managers of the platform. In contrast to much existing work on Wikimedia governance, which sees the institutional architecture as stable over time (Jemielniak 2014; 2016; Konieczny 2009; Piskorski and Gorbatai 2017), this article highlights contingencies and process in producing an institution wholly responsive to its user base.

At the same time, outsiders who launched revolts when Wikipedia was considerably more stable and who did not possess control of its key institutional levers were unsuccessful. Efforts by conservatives and far-right individuals in 2006 to rectify what they considered to be the "liberal bias" of Wikipedia failed. Their alternative encyclopedias, *Metapedia* and *Conservapedia*, were not credible threats against Wikipedia. Furthermore, the Wikipedia users who led the conservative revolts did not organize their revolt through Wikipedia's internal institutions, and they were not elite users who had a long record of contributing to it, which contributed to their failure to persuade other editors to depart en masse.

In the case of Facebook, we see the platform manage a balancing act in its early years when it sought to take baby steps toward profitability without prompting a mass user exit and a death spiral. Facebook managed this balancing act by repeatedly attempting modest changes and then immediately backtracking when it faced backlash from the user base. This showed considerable responsiveness to users and skittishness about user revolts.

Facebook's behavior is consistent with the expectations and mechanisms of my theory. The platform showed an willingness to heed user grievances only when the users had credible exit options: The internal communications among Facebook leadership made it clear that their responsiveness to user demands was highly contingent on these credible exit options. At the time of Myspace's demise, Facebook was set to implement drastic policies to roll back user rights and increase the profitability of the company. What restrained them was news that Google was going to launch a competitor. In the words of Facebook COO Sheryl Sandberg, "For the first time, we have real competition and consumers have real choice... we will have to be better to win" (*States v. Facebook* 2020, 27). In the absence of credible exit options, the platform is emboldened to disregard users' wants.

Facebook did implement referenda to gauge user sentiment on the platform, but the way they were structured suggests that the leadership was not motivated by a principled regard for user rights. Instead, the referenda helped the platform management learn about user grievances

so that they would not be surprised by users' reactions to policy changes and face the risk of unexpected mass exits.<sup>24</sup> The 30% threshold for the referenda effectively meant that none would be binding because only highly committed users would participate. The fact that there were relatively few such users meant they could not successfully coordinate action against Facebook and keep the platform accountable. This stands in contrast to the institutional structures on Wikipedia and Reddit, where a small number of highly dedicated users could organize collective action.

An analysis of Reddit and Digg demonstrates how the institutional setup on both platforms provided users some means to coordinate collective action, although the platforms were not as wholly democratic as Wikipedia. The dispersal of power across subreddit moderators limits the ability of redditors to restrain management. In addition, these moderators may struggle to coordinate a revolt unless there is a focal point around which to organize. Nonetheless, even if they fail to coordinate and the revolt is scattered, they can still impose costs on management by "blacking out" subreddits.

Elite users who hold institutionalized power can impose substantial costs on Reddit management and pressure the platform into acting in response to user grievances. The 2015 revolt against Ellen Pao is an example of a successful revolt; in contrast, the 2023 revolt over API pricing failed. However, in both cases, the revolutionaries had the ability to impose substantial costs on the platform's management. That said, it is difficult for Reddit users to have a meaningful say on more complicated issues, such as subreddit censorship; on that issue, the Reddit management instead largely has taken its cues from business pressure.

Across these four cases, there are three dynamics that bear examination: (1) elite users versus regular users, (2) meaningful versus superficial reforms, and (3) varieties of pro-user institutions. First, the cases show that there may exist a tension between empowering active elite users versus passive regular users. Platforms like Wikipedia and Reddit enable the most passionate and active users to strongly shape policy. These elite users hold onto these powers even if other users are passive and do not contribute. Digg managed tensions between elite users and regular users through a balancing act where it granted privileges to elite users that were occasionally modified when regular users expressed grievances. Facebook was able to undermine collective action by its user base by creating a participation threshold in its referenda that effectively meant that the grievances of the most passionate and active users could only directly translate into policy if they were able to cajole passive users into participating.

Second, the case studies highlight how some reforms are deep and meaningful while others are superficial and intended to briefly temper a user revolt, business boycott, or state intervention. Media attention led Reddit to censor prominent subreddits that promoted highly controversial

content. At the same time, it frequently let duplicate subreddits remain on the platform that promoted the exact same content that the bans were intended to eradicate. This shows a level of superficiality in Reddit's response to external pressure: The platform sought to appease external critics by censoring the most prominent controversial subreddits while knowing that those external critics would not be attentive to the duplicate subreddits. Some of Facebook's actions also indicate the superficiality of its reforms. For example, Facebook's referenda were arguably intended more to make Facebook *seem* responsive to its users than to give users any meaningful say on policy. Similarly, its policy on hate speech is a half-measure that seeks to appease multiple audiences by creating exceptions that enable powerful purveyors of hate speech to remain on the platform.

Third, the platforms examined here highlight the varieties of institutional setups that enable collective action by users. On a platform such as Wikipedia, we observe how users set up noticeboards to settle high-stakes disputes and make rules; use institutions akin to courts to hold both regular users and elite users (administrators, arbitrators, and Wikipedia founder Jimmy Wales) accountable; and hold frequent plebiscites on all content and all rules, which reinforce a democratic spirit and keep power in the hands of the user community. On Reddit and Digg, we see how users can take advantage of the fundamental nature of these platforms, their discussion component, to raise grievances, organize collective exits, and hold subreddit moderators and platform managers accountable. More importantly, we see how subreddit moderators can cripple Reddit by disabling large parts of the website. This can be a powerful lever of influence against the Reddit management, but to be successful, subreddit moderators must organize among themselves to initiate blackouts at the same time. This means that the blackouts are more likely to be successful on issues that are simple with clear solutions (such as firing a staff member) than on multifaceted issues with difficult solutions (such as devising bright-line rules on acceptable speech and behavior).

## Conclusion

The institutional architecture of digital platforms varies considerably across platforms, as well as within each platform over time, which affects their responsiveness to users. This article proposed an explanation rooted in network effects and temporal sequencing to account for these variations. Due to the logic of network effects, platforms show greater responsiveness to users in the early years of their existence, and this responsiveness decreases over time. As the platform grows, users must influence the platform through intermediaries such as businesses, which can boycott it, or states that can regulate and so punish it. At the same, more actors in society seek to influence the platform when its impact on social, economic, and



political outcomes increases. There is a key exception to this temporal variation, namely that users can successfully lock in institutional features early that retain user power over the long run. In other words, by altering the institutional architecture of a platform, users can retain the ability to engage in collective action against the platform even when it becomes a behemoth. A comparative case study of four platforms—Facebook, Wikipedia, Reddit, and Digg—provided evidence consistent with the theory.

This article contributes to existing research on digital platforms by highlighting their important internal politics. Its theory incorporates structural features of the platform economy while emphasizing contingency and process in explaining variations in platforms' institutional characteristics over time. Much existing work on the platform economy, particularly in political science, assumes that digital platforms are internally apolitical spaces whose actions and outputs can primarily be understood through their interactions with external actors, such as states, businesses, and international organizations.<sup>25</sup>

In contrast, this article shows that internal politics on digital platforms can enable users to profoundly shape their institutional characteristics. Most research on digital platforms in political science neglects internal politics and focuses instead on the interaction of platforms with external actors. As I show, assumptions that platforms are unitary actors whose actions are primarily understood through their interaction with external actors do not necessarily hold. Even among political scientists who take platform users seriously, the focus is primarily on explaining how the institutional setup of different platforms affects the power of users, not on how users can alter the institutional setup of platforms (Forrestal 2017; 2021a; 2021b; Wong 2023). The institutional architectures of platforms are not fixed and inevitable but rather emerge through contestation. Early on, this contestation happens internally, as platform managers seek to engage users; later, the platforms are primarily responsive to external actors (unless users lock in pro-user institutions early on).

These findings are consistent with scholarship on democratization that links the creation of democratic institutions to the presence of powerful groups with the means to harm rulers through resistance, exit, or both (Bates and Lien 1985; Deudney 2007; Moller 2014; Stasavage 2016). In a reformulation of Albert Hirschman's *Exit, Voice and Loyalty* (1970) framework, I show that platform users become less able to exercise their voice to a meaningful end when the exit option is not credible.

Future research should examine the extent to which this theory extends to a larger universe of cases in the platform economy to determine its precise scope conditions.

Further study is needed to assess to what extent the argument applies to platforms that are strictly transactional, such as Amazon and Uber.<sup>26</sup>

## Acknowledgements

I am grateful for valuable and detailed feedback from Martha Finnemore, Kathleen Thelen, Herman Mark Schwartz, Natalie Thompson, Raymond Wang, Jonas Heering, and Andrew Bennett on earlier versions of this article. I also benefited from comments by participants in the Consortium on the American Political Economy's 2022 summer school at MIT, the Authoritarianism reading group at George Washington University, and Andrew Bennett's Qualitative Research Methods class at Georgetown University.

## Notes

- 1 See Pierson (2000). Shapiro and Varian (1998) use the term "switching costs" to refer to the reluctance of users to switch between systems once they have made a choice.
- 2 See Farrell (2012), Bruckman (2022), Srivastava (2023), and Steinsson (2024).
- 3 This definition comprises various elements present in definitions by Gawer (2014); Parker and Van Alstyne (2012); Hein et al. (2020); and De Reuver, Sorensen, and Basole (2018).
- 4 Key characteristics of platforms are that they reduce transaction costs, coordinate actions through modular compartmentalization of tasks, solve tasks through a large and diverse number of participants, and become more valuable through "cross-side network effects" (Asadullah, Faik, and Kankanhalli 2018; Evans 2014; Evans and Gawer 2016; Parker and Van Alstyne 2012).
- 5 These are ideal types of organizational forms. Platforms are not unique in their roles as nodes and intermediaries between actors. This is, after all, what traditional firms in the Coasean perspective do: They serve as nodes between multiple actors to produce products from their combined efforts (Coase 1937). What makes platforms unique is the extreme nature of network effects.
- 6 A traditional antitrust case would consider whether the size of a firm adversely affects prices for consumers and whether the firm's size is substantial enough to deter the market entry of new firms. This logic does not work as well in a two-sided market, because the growth of firms like Google and Facebook does not lead to price increases for the users of the platforms (who use the platforms for free; Rahman and Thelen 2019; Tirole 2020).
- 7 A 2019 report by the Stigler Center (2019, 14–15) concluded that "digital platforms are uniquely

powerful political actors” because of their economic power, agenda-setting power, complexity, connectivity, and ability to appeal to the national interest. These characteristics make government oversight difficult. According to the report, “Google and Facebook have the power of ExxonMobil, the *New York Times*, JPMorgan Chase, the NRA, and Boeing combined. Furthermore, all this combined power rests in the hands of just three people” (15).

- 8 See Zhurayska, Petrova, and Enikopolov (2020).
- 9 For more on hacker culture and the principles of the open-source movement, see Levy (1984), Raymond (1999), Himanen and Torvalds (2001), Coleman (2012; 2014), and Weber (2004).
- 10 King, Keohane, and Verba (1994; 123) argue that a curtailed number of explanatory variables can maximize leverage. Geddes (2003, 7) recommends that theories be “simple...[yet] apply broadly.”
- 11 Case studies can be generalizable if the chosen cases are representative of the total population (King, Keohane, and Verba 1994) or of a class of cases (George and Bennett 2005, 110).
- 12 When sellers and producers are a dominant part of a platform’s user base, the power dynamics between a platform and its users may be different. See Eaton et al. (2015); Rietveld, Ploog, and Nieborg (2020); and Cutolo and Kenney (2021) for their discussion on “complementors.”
- 13 In other words, if the digital platforms are implementing institutional changes or avoiding implementing institutional changes in expectation of being compelled by one of these actors, then that is a measure of an actor’s power. Excluding such cases would result in selection bias and flawed measurements.
- 14 The cases are not randomly chosen. Random selection of cases is ill-advised in case study research for several reasons (Braumoeller and Carson 2011; Fairfield and Charman 2017; Geddes 2003; George and Bennett 2005; King, Keohane, and Verba 1994, 126, 135; Goertz and Mahoney 2012). Cases should instead be chosen in a way that provides maximal leverage in evaluating the hypotheses of interest. The inclusion of irrelevant cases may bias the results (Braumoeller and Carson 2011).
- 15 See King, Keohane, and Verba (1994); Geddes (2003); and George and Bennett (2005) on the value of a large number of observations.
- 16 Some might challenge the appropriateness of including both for-profit platforms and nonprofit platforms in the analysis. There are several reasons why the profit status of the platform is not a scope condition for the theory. What matters is whether a network effect logic underpins the organizational model of the platforms. Network effects are central to the four platforms, regardless of whether they are motivated by profit or other goals. Lastly, it would be erroneous to assume that the nonprofit and for-profit status of these organizations is a fixed constant that cannot be altered. As the empirical section of the article shows, user power and pro-user institutional characteristics may help enshrine the nonprofit status of a platform like Wikipedia and restrain the ways in which a platform like Reddit seeks profit (Reddit has famously never turned a profit). The shift of the most prominent AI organization, OpenAI, from nonprofit to profit status shows that nonprofit status is not fixed in stone.
- 17 For the evolution of Wikipedia, see Steinsson (2024), Bruckman (2022), Piskorski and Gorbatai (2017), Aaltonen and Seiler (2016), and Aaltonen and Lanzara (2015).
- 18 In the early days of Wikipedia, Wales was sometimes referred to as a “benevolent dictator.” Formal power and authority were in his hands, but he usually deferred to community consensus (Jemielniak 2014, 160).
- 19 As soon as 2005, the members of the Arbitration Committee reflected a combination of arbitrators who had been handpicked by Wales without advisory elections and those picked by Wales after advisory elections (Deggans 2005).
- 20 Facebook continued to harvest the data: It just no longer made that data public in users’ news feeds to their friends (Eldon 2007).
- 21 However, the default option was to make most information public (Bilton 2010).
- 22 By 2010, media reporting on Facebook began to emphasize the size and influence of the platform, as well as plans to move toward profitability (e.g., Hudson 2010).
- 23 For example, a post calling for the ban of r/beating-women appeared on the front page of Reddit in 2011 (Reddit 2011).
- 24 Facebook’s referenda bear similarities to elections in authoritarian systems. Such elections are intended to test for grievances and signal superficial accountability, thus serving to bolster the stability of the authoritarian regime (Geddes, Wright, and Frantz 2018).
- 25 A recent literature examines platform power (e.g., Atal 2021; Culpepper and Thelen 2020; Rahman and Thelen 2019; Srivastava 2023; Weymouth 2023), showing that platforms wield unique forms of power in the economy and politics. I am fully in agreement that digital platforms have the power to push back on attempts by governments to regulate them, resist efforts by businesses to boycott or sue them, and manipulate users and forestall efforts by users to stage revolts. However, a contribution of this article is understanding how these actors are able to wield power against platforms, which has been insufficiently theorized in the existing literature.

- 26 Lehdonvirta (2022, chap. 9), in which he examines collective action attempts by Mechanical Turk users on Amazon, is an example of such a study.

## References

- Aaltonen, Aleks, and Giovan Francesco Lanzara. 2015. "Building Governance Capability in Online Social Production: Insights from Wikipedia." *Organization Studies* 36 (12): 1649–73.
- Aaltonen, Aleks, and Stephan Seiler. 2016. "Cumulative Growth in User-Generated Content Production: Evidence from Wikipedia." *Management Science* 62 (7): 2054–69.
- Abad-Santos, Alex. 2015. "The Reddit revolt That Led to CEO Ellen Pao's Resignation, Explained." *Vox.com*, July 10, 2015. <https://www.vox.com/2015/7/8/8914661/reddit-victoria-protest>.
- Acquier, Aurélien. 2018. "Uberization Meets Organizational Theory: Platform Capitalism and the Rebirth of the Putting-Out System." In *The Cambridge Handbook of the Law of the Sharing Economy*, eds. John J. Infranca, Michèle Finck, and Nestor M. Davidson, 13–26. Cambridge: Cambridge University Press.
- Arrington, Michael. 2006. "Facebook Users Revolt, Facebook Replies." *Techcrunch*, September 6, 2006. <https://techcrunch.com/2006/09/06/facebook-users-revolt-facebook-replies/>.
- Asadullah, Ahmad, Isam Faik and Atreyi Kankanhalli. 2018. "Digital Platforms: A Review and Future Directions." *PACIS 2018 Proceedings* 248. <https://aisel.aisnet.org/pacis2018/248/>.
- Atal, Maha Rafi. 2021. "The Janus Faces of Silicon Valley." *Review of International Political Economy* 28 (2): 336–50.
- Bates, Robert H., and Da-Hsiang Donald Lien. 1985. "A Note on Taxation, Development, and Representative Government." *Politics & Society* 14 (1): 53–70.
- BBC News. 2009. "Facebook 'Withdraws' Data Changes." *News.bbc.co.uk*, February 18, 2009. <http://news.bbc.co.uk/2/hi/technology/7896309.stm?lss>.
- Benkler, Yochai. 2002. "Coase's Penguin or, Linux and 'The Nature of the Firm.'" *Yale Law Journal* 112: 369–446.
- Bilton, Nick. 2010. "Price of Facebook Privacy? Start Clicking." *Nytimes.com*, May 12, 2010. <https://www.nytimes.com/2010/05/13/technology/personaltech/13basics.html>.
- Braumoeller, Bear F., and Austin Carson. 2011. "Political Irrelevance, Democracy, and the Limits of Militarized Conflict." *Journal of Conflict Resolution* 55 (2): 292–320.
- Bruckman, Amy. 2022. *Should You Believe Wikipedia?* Cambridge: Cambridge University Press.
- Cennamo, Carmelo, and Juan Santalo. 2013. "Platform Competition: Strategic Trade-Offs in Platform Markets." *Strategic Management Journal* 34 (11): 1331–50.
- Chozick, Amy. 2013. "Jimmy Wales Is Not an Internet Billionaire." *Nytimes.com*, June 27, 2013. <https://www.nytimes.com/2013/06/30/magazine/jimmy-wales-is-not-an-internet-billionaire.html>.
- Clark, Bryan. 2019. "Reddit Operates Exactly as It Was Designed—And That's a Problem." *Thenextweb.com*, March 15, 2019. <https://thenextweb.com/opinion/2019/03/15/reddit-operates-exactly-as-it-was-designed-and-thats-a-problem/>.
- Coase, Ronald. 1937. "The Nature of the Firm." *Economica* 4: 386–405.
- Coleman, Gabriella. 2012. *Coding Freedom: The Ethics and Aesthetics of Hacking*. Princeton: Princeton University Press.
- . 2014. *Hacker, Hoaxer, Whistleblower, Spy: The Many Faces of Anonymous*. New York: Verso.
- Culpepper, Pepper D., and Kathleen Thelen. 2020. "Are We All Amazon Primed? Consumers and the Politics of Platform Power." *Comparative Political Studies* 53 (2): 288–318.
- Cutolo, Donato, and Martin Kenney. 2021. "Platform-Dependent Entrepreneurs: Power Asymmetries, Risks, and Strategies in the Platform Economy." *Academy of Management Perspective* 35 (4): 584–605.
- Deggans, Eric. 2005. "When Wikipedians run amok on orderly online encyclopedia." *Tampa Bay Times*, 27 Dec. <https://www.tampabay.com/archive/2005/12/27/when-wikipedians-run-amok-on-o>.
- De Reuver, Mark, Carsten Sorensen, and Rahul C. Basole. 2018. "The Digital Platform: A Research Agenda." *Journal of Information Technology* 33: 124–35.
- Deudney, Daniel H. 2007. *Bounding Power: Republican Security Theory from the Polis to the Global Village*. Princeton: Princeton University Press.
- Dwoskin, Elizabeth, Craig Timberg, and Tony Romm. 2020. "Zuckerberg Once Wanted to Sanction Trump: Then Facebook Wrote Rules That Accommodated Him." *Washingtonpost.com*, June 28, 2020. <https://www.washingtonpost.com/technology/2020/06/28/facebook-zuckerberg-trump-hate/>.
- Eaton, Ben, Silvia Elaluf-Calderwood, Carsten Sorensen, and Youngjin Yoo. 2015. "Distributed Tuning of Boundary Resources: The Case of Apple's iOS Service System." *MIS Quarterly* 39 (1): 217–43.
- Eldon, Ed. 2007. "Facebook's Behind-the-Scenes Tracker of Your Web Behavior." *Venturebeat.com*, December 1, 2007. <https://venturebeat.com/2007/12/01/beacon-also-facebooks-behind-the-scenes-web-data-tracker/>.
- Engerman, Stanley L., and Kenneth L. Sokoloff. 2005. "The Evolution of Suffrage Institutions in the New World." *Journal of Economic History* 65 (4): 891–921.

- Evans, David S., and Richard Schmalensee. 2016. *Matchmakers: The New Economics of Multisided Platforms*. Cambridge, MA: Harvard Business Review Press.
- Evans, Peter C., and Annabelle Gawer. 2016. *The Rise of the Platform Enterprise: A Global Survey*. New York: Center for Global Enterprise.
- Facebook. 2006. "An Open Letter from Mark Zuckerberg." *Facebook.com*, September 8, 2006. <https://archive.is/cJccG>.
- Fairfield, Tasha, and Andrew E. Charman. 2017. "Explicit Bayesian Analysis for Process Tracing: Guidelines, Opportunities, and Caveats." *Political Analysis* 25 (3): 363–80.
- Farrell, Henry. 2012. "The Consequences of the Internet for Politics." *Annual Review of Political Science* 15: 35–52.
- Federal Trade Commission. 2021. Complaint, August 19, 2021. [https://www.ftc.gov/system/files/documents/cases/ecf\\_75-1\\_ftc\\_v\\_facebook\\_public\\_redacted\\_fac.pdf](https://www.ftc.gov/system/files/documents/cases/ecf_75-1_ftc_v_facebook_public_redacted_fac.pdf).
- Forestal, Jennifer. 2017. "The Architecture of Political Spaces: Trolls, Digital Media, and Deweyan Democracy." *American Political Science Review* 111 (1): 149–161.
- . 2021a. "Beyond Gatekeeping: Propaganda, Democracy, and the Organization of Digital Publics." *The Journal of Politics* 83 (1): 306–320.
- . 2021b. "Constructing Digital Democracies: Facebook, Arendt, and the Politics of Design." *Political Studies* 69 (1): 26–44.
- Fourcade, Marion, and Daniel N. Klutts. 2020. "A Maussian Bargain: Accumulation by Gift in the Digital Economy." *Big Data & Society* 7(1). <https://journals.sagepub.com/doi/10.1177/2053951719897092>.
- Gawer, Annabelle. 2014. "Bridging Differing Perspectives on Technological Platforms: Toward an Integrative Framework." *Research Policy* 43 (7): 1239–49.
- Gawer, Annabelle, and Michael A. Cusumano. 2002. *Platform Leadership: How Intel, Microsoft, and Cisco Drive Industry Innovation*. Cambridge, MA: Harvard Business School Press.
- Geddes, Barbara. 2003. *Paradigms and Sand Castles*. Ann Arbor: University of Michigan Press.
- Geddes, Barbara, Joseph Wright, and Erica Frantz. 2018. *How Dictatorships Work*. Cambridge: Cambridge University Press.
- George, Alexander L., and Andrew Bennett. 2005. *Case Studies and Theory Development in the Social Sciences*. Cambridge, MA: MIT Press.
- Goertz, Gary, and James Mahoney. 2012. *A Tale of Two Cultures*. Princeton: Princeton University Press.
- The Guardian*. 2006. "Facebookers Protest over Privacy." *Theguardian.com*, September 8, 2006. <https://www.theguardian.com/technology/2006/sep/08/news.newmedia>.
- Hein, Andreas, Maximilian Schreieck, Tobias Riasanow, David Soto Setzke, David Soto, Manuel Wiesche, Markus Böhm, and Helmut Krcmar. 2020. "Digital Platform Ecosystems." *Electronic Markets* 30 (1): 87–98.
- Himanen, Pekka, and Linus Torvalds. 2001. *The Hacker Ethic and the Spirit of the Information Age*. New York: Vintage Press.
- Hirschman, Albert. 1970. *Exit, Voice, and Loyalty*. Cambridge, MA: Harvard University Press.
- Hudson, John. 2010. "The Future of Facebook: The End of Privacy?" *Theatlantic.com*, April 22, 2010. <https://www.theatlantic.com/technology/archive/2010/04/the-future-of-facebook-the-end-of-privacy/345870/>.
- Ilten, Carla. 2014. "Thoughts on Peer Economy Platforms." *Culturedigitally.org*, October. <https://culturedigitally.org/2014/10/thoughts-on-peer-economy-platforms-a-new-iron-cage/>.
- Isaac, Mike, and Sheera Frenkel. 2020. "Facebook Adds Labels for Some Posts as Advertisers Pull Back." *Nytimes.com*, June 26, 2020. <https://www.nytimes.com/2020/06/26/technology/facebook-labels-advertisers.html>.
- Jemielniak, Dariusz. 2014. *Common Knowledge? An Ethnography of Wikipedia*. Stanford: Stanford University Press.
- . 2016. "Wikimedia Movement Governance: The Limits of A-Hierarchical Organization." *Journal of Organizational Change Management* 29 (3): 361–78.
- Kenkel, Brenton, and Jack Paine. 2023. "A Theory of External Wars and European Parliaments." *International Organization* 77 (1): 102–43.
- Kennedy, Alan H. 2022. "Voters in a Foreign Land: Alien Suffrage in the United States, 1704–1926." *Journal of Policy History* 34 (2): 245–75.
- King, Gary, Robert O. Keohane, and Sidney Verba. 1994. *Designing Social Inquiry*. Princeton: Princeton University Press.
- Kirkpatrick, David. 2010. "Facebook Ads and Mark Zuckerberg's Strategy." *Thedailybeast.com*, October 12, 2010. <https://www.thedailybeast.com/facebook-ads-and-mark-zuckerbergs-strategy>.
- Kobie, Nicole. 2010. "Facebook Fights Back with New Privacy Controls." *Itpro.co.uk*, May 26, 2010. <https://www.itpro.co.uk/623731/facebook-fights-back-with-new-privacy-controls>.
- Konieczny, Piotr. 2009. "Governance, Organization, and Democracy on the Internet: The Iron Law and the Evolution of Wikipedia." *Sociological Forum* 24 (1): 162–92.
- Lehdonvirta, Vili. 2022. *Cloud Empires*. Cambridge, MA: MIT Press.



- Levy, Steven. 1984. *Hackers: Heroes of the Computer Revolution*. Newton, MA: O'Reilly Media.
- Marantz, Andrew. 2020. "Why Facebook Can't Fix Itself." *Newyorker.com*, October 12, 2020. <https://www.newyorker.com/magazine/2020/10/19/why-facebook-cant-fix-itself>.
- McAfee, Andrew, and Eric Brynjolfsson. 2017. *Machine, Platform, Crowd*. New York: W. W. Norton.
- Metz, Rachel. 2012. "Why Did Reddit Succeed Where Digg Failed?" *Technologyreview.com*, July 18, 2012. <https://www.technologyreview.com/2012/07/18/184890/why-did-reddit-succeed-where-digg-failed>.
- Møller, Jørgen. 2014. "Why Europe Avoided Hegemony: A Historical Perspective on the Balance of Power." *International Studies Quarterly* 58 (4): 660–670.
- NBC News. 2007. "Digg Reluctantly Bows to User Demands." *Nbcnews.com*, May 2, 2007. <https://www.nbcnews.com/id/wbna18443904/>
- Nikolova, Elena. 2017. "Destined for Democracy? Labour Markets and Political Change in Colonial British America." *British Journal of Political Science* 47 (1): 19–45.
- NPR. 2020. "Reddit Bans The\_Donald, Forum of Nearly 800,000 Trump Fans, over Abusive Posts." *NPR.org*, June 29, 2020. [https://www.npr.org/2020/06/29/884819923/reddit-bans-the\\_donald-forum-of-nearly-800-000-trump-fans-over-abusive-posts](https://www.npr.org/2020/06/29/884819923/reddit-bans-the_donald-forum-of-nearly-800-000-trump-fans-over-abusive-posts).
- Parker, Geoffrey, and Marshall Van Alstyne. 2012. *A Digital Postal Platform: Definitions and a Roadmap*. Brussels: International Post Corporation.
- Parr, Ben. 2009. "How Facebook Dominated in 2009." *Mashable.com*, December 30, 2009. <https://mashable.com/2009/12/30/facebook-2009/>.
- Pierson, Paul. 2000. "Path Dependence, Increasing Returns, and the Study of Politics." *American Political Science Review* 94, 2: 251–67.
- Piskorski, Mikolaj Jan, and Andreea Gorbatai. 2017. "Testing Coleman's Social-Norm Enforcement Mechanism: Evidence from Wikipedia." *American Journal of Sociology* 122 (4): 1183–222.
- Popkin, Helen. 2011. "Reddit pulls 'jailbait' section after kid porn post." *NBC News*, 11 October. <https://www.nbcnews.com/news/world/reddit-pulls-jailbait-section-after-kid-porn-post-f1na>.
- Rahman, K. Sabeel, and Kathleen Thelen. 2019. "The Rise of the Platform Business Model and the Transformation of Twenty-First Century Capitalism." *Politics and Society* 47 (2): 177–204.
- Raymond, Eric S. 1999. *The Cathedral and the Bazaar: Musings on Linux and Open Source by an Accidental Revolutionary*. Newton, MA: O'Reilly Media.
- Reagle, Joseph. 2010. *Good Faith Collaboration: The Culture of Wikipedia*. Cambridge, MA: MIT Press.
- Reddit. 2011. "These Are Real Women. These Are Real Crimes. Make This Stop, Reddit." *Reddit.com*, August 10, 2011. [https://www.reddit.com/r/reddit.com/comments/jeokh/these\\_are\\_real\\_women\\_these\\_are\\_real\\_crimes\\_make/](https://www.reddit.com/r/reddit.com/comments/jeokh/these_are_real_women_these_are_real_crimes_make/).
- Rietveld, Joost, Joe N. Ploog, and David B. Nieborg. 2020. "Coevolution of Platform Dominance and Governance Strategies: Effects on Complementor Performance Outcomes." *Academy of Management Discoveries* 6 (3): 488–513.
- Robertson, Adi. 2018. "Mark Zuckerberg Wants to Democratize Facebook—Here's What Happened When He Tried." *Theverge.com*, April 5, 2018. <https://www.theverge.com/2018/4/5/17176834/mark-zuckerberg-facebook-democracy-governance-vote-failure>.
- . 2021. "Major Subreddits Are Going Dark to Protest Reddit Allegedly Hiring a Controversial UK Politician." *Theverge.com*, March 24, 2021. <https://www.theverge.com/2021/3/24/22348255/reddit-moderator-blackout-protest-aimee-knight-uk-green-party>.
- Rochet, Jean-Charles, and Jean Tirole. 2003. "Platform Competition in Two-Sided Markets." *Journal of the European Economic Association* 1 (4): 990–1029.
- Rogers, Kaleigh. 2015. "Why Reddit Banned Some Racist Subreddits but Kept Others." *Vice.com*, August 6, 2015. <https://www.vice.com/en/article/539vv8/why-reddit-banned-some-racist-subreddits-but-kept-others>.
- Rose, Kevin. 2021. "Kevin Rose on Product Philosophy, Reddit & Digg's Inverse Journeys, Twitter's Innovations." Interview on *This Week in Startups*, March 16, 2021. <https://youtu.be/43MgbwQBdIk>.
- Seetharaman, Deepa. 2018. "Facebook's Lonely Conservative Takes on a Power Position." *Wsj.com*, December 23, 2018. <https://www.wsj.com/articles/facebooks-lonely-conservative-takes-on-a-power-position-11545570000>.
- Serrano, Jody. 2023. "Reddit CEO Flames Protesting Moderators, Calls Them 'Landed Gentry.'" *Gizmodo.com*, June 16, 2023. <https://gizmodo.com/reddit-ceo-steve-huffman-moderators-landed-gentry-1850546737>.
- Shapiro, Carl, and Hal Varian. 1998. *Information Rules: A Strategic Guide to the Network Economy*. Cambridge, MA: Harvard Business School Press.
- Silverman, Craig, and Ryan Mac. 2020. "Facebook Fired an Employee Who Collected Evidence of Right-Wing Pages Getting Preferential Treatment." *Buzzfeednews.com*, August 6, 2020. <https://www.buzzfeednews.com/article/craigsilverman/facebook-zuckerberg-what-if-trump-disputes-election-results>.
- Smiley, Brett. 2012. "In Policy Shift, Reddit Bans Child Pornography." *Nymag.com*, February 12, 2012. <https://nymag.com/intelligencer/2012/02/policy-shift-reddit-bans-child-pornography.html>.
- Solon, Olivia. 2020. "Sensitive to Claims of Bias, Facebook Relaxed Misinformation Rules for

- Conservative Pages." *Nbcnews.com*, August 7, 2020. <https://www.nbcnews.com/news/amp/ncna1236182>.
- Srivastava, Swati. 2023. "Algorithmic Governance and the International Politics of Big Tech." *Perspectives on Politics* 21 (3): 989–1000.
- Stasavage, David. 2016. "Representation and Consent: Why They Arose in Europe and Not Elsewhere." *Annual Review of Political Science* 19 (1): 145–62.
- States v. Facebook*. 2020. Complaint, December 9, 2020. [https://ag.ny.gov/sites/default/files/facebook\\_complaint\\_12.9.2020.pdf](https://ag.ny.gov/sites/default/files/facebook_complaint_12.9.2020.pdf).
- Steel, Emily. 2011. "Advertisers Wary of Myspace." *Wall Street Journal*, March 28, 2011. <https://www.wsj.com/articles/SB10001424052748703576204576226620748953038>.
- Steinsson, Sverrir. 2024. "Rule Ambiguity, Institutional Clashes and Population Loss: How Wikipedia Became the Last Good Place on the Internet." *American Political Science Review* 118 (1): 235–51.
- Stigler Center. 2019. *Stigler Committee on Digital Platforms: Final Report*. <https://www.publicknowledge.org/wp-content/uploads/2019/09/Stigler-Committee-on-Digital-Platforms-Final-Report.pdf>.
- Story, Louise, and Brad Stone. 2007. "Facebook Retreats on Online Tracking." *Nytimes.com*, November 30, 2007. <https://www.nytimes.com/2007/11/30/technology/30face.html>.
- Timberg, Craig. 2020. "How Conservatives Learned to Wield Power inside Facebook." *Washingtonpost.com*, February 20, 2020. <https://www.washingtonpost.com/technology/2020/02/20/facebook-republican-shift/>.
- Tirole, Jean. 2020. "Competition and the Industrial Challenge for the Digital Age." Working Paper. [https://www.tse-fr.eu/sites/default/files/TSE/documents/doc/by/tirole/competition\\_and\\_the\\_industrial\\_challenge\\_april\\_3\\_2020.pdf](https://www.tse-fr.eu/sites/default/files/TSE/documents/doc/by/tirole/competition_and_the_industrial_challenge_april_3_2020.pdf).
- Tkacz, Nathaniel. 2015. *Wikipedia and the Politics of Openness*. Chicago: University of Chicago Press.
- Vaidhyanathan, Siya. 2011. *The Googlization of Everything (And Why We Should Worry)*. Berkeley: University of California Press.
- Van Buskirk, Elidit. 2010. "Report: Facebook CEO Mark Zuckerberg Doesn't Believe in Privacy." *Wired.com*, April 28, 2010. <https://www.wired.com/2010/04/report-facebook-ceo-mark-zuckerberg-doesnt-believe-in-privacy/>.
- Vigdor, Neil, and Niraj Chokshi. 2019. "Reddit Restricts Pro-Trump Forum Because of Threats." *Nytimes.com*, June 26, 2019. <https://www.nytimes.com/2019/06/26/us/politics/reddit-donald-trump-quarantined.html>.
- Weber, Steven. 2004. *The Success of Open Source*. Cambridge, MA: Harvard University Press.
- Weymouth, Stephen. 2023. *Digital Globalization: Politics, Policy, and a Governance Paradox*. Cambridge: Cambridge University Press.
- Wikipedia. 2022. "Enciclopedia Libre Universal en Español." *En.wikipedia.org*. [https://en.wikipedia.org/wiki/Enciclopedia\\_Libre\\_Universal\\_en\\_Espa%C3%B1ol](https://en.wikipedia.org/wiki/Enciclopedia_Libre_Universal_en_Espa%C3%B1ol).
- . 2024. "Wikipedia:Wikipedians." *En.wikipedia.org*. <https://en.wikipedia.org/wiki/Wikipedia:Wikipedians>.
- Wong, Wendy H. 2023. *We, the Data: Human Rights in the Digital Age*. MIT Press.
- Zeff, Maxwell. 2024. "Google Will Scrape Reddit Communities for AI Parts in \$60 Million Deal: Report." *Gizmodo.com*, February 22, 2024. <https://gizmodo.com/reddit-signs-deal-scrape-your-online-community-ai-parts-1851270475>.
- Zuboff, Shoshana. 2020. *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. PublicAffairs.