TikTok as a Platform Tool: Surveying Disciplinary Perspectives on Platforms and Cultural Production

Kaushar Mahetaji and David B. Nieborg

INTRODUCTION

In July 2021, short-form video platform TikTok became the first non-Meta (then Facebook) app to celebrate three billion global downloads. In September of that same year, TikTok announced one billion monthly active users (Silberling, 2021). TikTok's unprecedented rise has been attributed to its focus on the creator economy. More so than its predecessors (i.e., Facebook, Twitter, Instagram, Snapchat, and even YouTube), TikTok invested heavily in creators by providing them with in-app tools for content production and distribution, such as all kinds of advanced visual and audio effects and filters. Building on the work of (Foxman, 2019), we understand these tools as platform tools or the *combined set of software-based resources that are infrastructurally integrated with*

K. Mahetaji • D. B. Nieborg (✉)
University of Toronto, Toronto, ON, Canada
e-mail: kaushar.mahetaji@mail.utoronto.ca; david.nieborg@utoronto.ca

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data-driven platform companies. As a subset of software tools, the affordances of platform tools are not necessarily novel. For example, the in-app functionalities of TikTok filters are similar to the capabilities of high-end video-editing software suites, such as Adobe Premiere Pro. Yet what sets platform tools apart from popular software tools from just a decade ago is, one, their accessibility, breadth, and ease of use, and two, that they are institutionally "platform-dependent," as they are fully integrated with the infrastructures and business logic of platform companies (Poell et al., 2021).

In the context of this chapter, we focus primarily on the use of platform tools by professional (i.e., market-oriented) cultural producers, realizing that in practice there may not be that clear a distinction between the use of platform tools by a TikTok-er who wants to generate an income and an everyday end-user. The reason to focus on TikTok is a recognition of the success of its tool-based strategy; incumbent platforms have redirected their priorities to develop short-form video apps as well—think of Google's YouTube Shorts and Meta's Instagram Reels. Taken together, these tool-centric apps signal a broader shift in platform ecosystems, where apps not only structure sociality but also format and constrain cultural production. As such, we explore the politics of platform tools to prompt future research on their impact on cultural creativity and diversity. As Kaye et al. (2022) observe, TikTok serves as both a distribution platform *and* a tool. This slipperiness of TikTok as a research object—it blurs the boundaries between professionals and amateurs, market and non-market production, formal and informal practices, and production and consumption—creates a series of conceptual and methodological challenges. By exploring platform tools, our chapter aims to untie these knots by asking "How are platform tools theorized, and which methods can we employ to analyze them?" And more specifically, "how do platforms govern creators through their tools?" These questions have gained a sense of urgency for three reasons.

First, cultural producers have to constantly grapple with the affordances and constraints of digital distribution platforms. Historically, both hardware, such as photo or video cameras, and software, such as editing suites for post-production, have put inherent limitations on what can and cannot be captured and shown to audiences. In turn, the rapid diffusion of social media apps, such as Instagram, YouTube, and TikTok, has marked the democratization of the means of cultural production. Users from across the globe are granted instant access to powerful software to create and manipulate photos and videos. At the same time, access to social media

apps is controlled by a handful of platform companies that include Apple, Meta (Facebook), Alphabet (Google), and TikTok's parent company ByteDance. Second, our literature review considers the role of platform companies and how they accrue and exert *institutional* power over the means of production through platform tools. Taking an institutional perspective on media culture deviates from the brunt of media scholarship, which tends to focus on how apps and platforms impact cultural creativity, labor, and ultimately cultural diversity in all its facets. Such user- and content-centered studies have raised important questions regarding algorithmic discrimination, a lack of labor protections and content diversity, and the culture and political economies of social media entertainment (Cunningham & Craig, 2019; Duffy, 2017; Noble, 2018). Crucially, labor practices and the creation of culture are constrained by globally operating platform companies that determine who can access their platform tools and under what conditions (Poell et al., 2021). Third, the platform tools both integrated and built directly into apps are used by billions of users worldwide. TikTok, for example, has rapidly become one of the most popular apps among Canadian teens, whereas the job of YouTuber, creator, or influencer is said to be one of the most sought-after careers by adolescents. Likewise, those who find employment at platform companies, or at any of the thousands of intermediary companies integrated with popular platforms, will eventually be confronted with the politics of platform tools.

Despite their popularity, economic impact, and scholarly relevance, platform tools are understudied. Therefore, this chapter provides an overview of existing scholarship on platforms and cultural production. More specifically, we will start by surveying three fields that have made a series of theoretical, methodological, and empirical contributions to our understanding of platform tools: platform studies, business studies, and information systems studies. Currently, we observe a lack of conceptual clarity, which is needed to have productive conversations about how platform power manifests itself through platform tools. There is little debate about the fact that platforms have become dominant institutional actors in the media industries. Yet, how institutional power manifests itself is less clear given the economic and infrastructural complexity and scope of platform companies (van Dijck et al., 2019). More consistent theory is necessary as it will allow not only scholars but also journalists, policy makers, and practitioners to engage more critically with how the design and governance of platform tools impacts cultural production. In the second part of this

chapter, we will then point to empirical contributions, reviewing their objects of study and processes and highlighting studies focused on popular apps such as TikTok (Kaye et al., 2022) and Instagram (Leaver et al., 2020). The role and politics of tools in these, and other recent publications, is not always front and center. To prompt future research, our chapter ends by pointing to the main objects of study and the methods deployed in the fields of platform, business, and information systems studies.

Platform companies notoriously resist scrutiny, and their infrastructures are both vast and opaque. However, to enable millions of users to create cultural content, platform companies are forced to make their tools legible and their governance frameworks explicit. Therefore, the data underlying platform scholarship consist of all kinds of documentation provided by platforms, such as developer documentation, community guidelines, end-user license agreements, app analyses and walkthroughs, and mandatory financial filings with regulators. These data have become key sites where platform power is made explicit, exerted, and negotiated.

THREE FIELDS OF STUDY AND THEIR PERSPECTIVES ON PLATFORM TOOLS

As the contributions in this edited volume go to show, there is ample scholarship discussing how media proprietors, publishing houses, music and television studios, and radio stations—firms that historically have owned the means of media production—accrued social, cultural, political, and economic power. Critical political economists of communication (Mirrlees, 2013), media industry and media production scholars (Herbert et al., 2020), and those active in the broader field of media and communication studies have all grappled with questions related to media production. Looking back, the technology to engage in cultural production has come a long way since the heydays of vertically integrated transnational media conglomerates. Outside of blockbuster movie productions, camera operators no longer need to be trained professionals tasked with whisking hulking chunks of heated metal from set to set. Today's camera operators—from the mumbling grade-schooler showcasing his *Pokémon* cards to the grandparents documenting their grandchildren bobbing to the latest viral hit—transformed into highly prolific and versatile cultural creators. Today, everyday users whip around pocket-sized devices that allow

them to edit, promote, and in some cases even monetize intricate video clips via a variety of distribution platforms.

It is all too easy to forget that the diffusion of powerful mobile media and a multi-billion-dollar app economy started only a decade ago in earnest (Goggin, 2021). One way to account for how apps and platforms have lowered a variety of economic and socio-cultural barriers is to speak of democratization. Instagram, YouTube, Bilibili, Kuaishou, or Douyin—each of these apps has opened new markets and created hundreds of millions of digitally literate creators in the process. At the same time, the process that has been theorized as the "platformization of cultural production" marks a centralization of economic and infrastructural power in the hands of those platform companies that own and operate these apps (Poell et al., 2021). For everyday users and companies, access to digital distribution platforms comes at a price, be it a figurative, political, or economic one. Rather than providing a historical overview of this shift toward app and "platform-dependent" cultural production (ibid.), next we will survey three different bodies of scholarship: platform studies, business studies, and information systems theory. Albeit implicitly at times, each of these subfields grapples with the fundamental tensions constituting platform-dependent cultural production: affordances versus constraints, democratization versus centralization, and diversity versus popularity. As we will see, these tensions are all on a spectrum. Some platforms and their associated tools are more permissive in terms of access or capabilities, while other apps are owned and operated by companies or countries that follow more restrictive paths. We began this section by pointing to the rich history of media scholarship because we want to stress that many of these tensions are anything but new. On the contrary, the rapid uptake of apps and platforms may have prompted a generative set of new theories and concepts, but this has happened against the background of the much longer trajectory of capitalism and the commodification of culture (Srnicek, 2017).

PLATFORM STUDIES: DATAFICATION, PLATFORMIZATION, AND INFRASTRUCTURALIZATION

Platform studies is an intuitive choice to start any examination of platform tools because, as the name suggests, this emerging field of study concentrates on platform "technologies, interfaces, and affordances, ownership structures, business models, media- and self-representations,

and governance of these entities" (Burgess, 2021, p. 26). Apart from exceptions in the neighboring field of game studies (Montfort & Bogost, 2009), which we will discuss at the end of this section, platform scholars have thus far largely shied away from including tools in their definitions and theories. Instead, they engage with broader institutional issues, such as platform markets and infrastructures as well as creative practices and labor. While the scholarly recognition that platforms are integrated with tools—or have even become tools in and by themselves—is not at the heart of platform scholarship, recent research provides a key avenue to engage in conversations about institutional power which shapes and is shaped by platform tools. That is to say, platform studies is fundamental to understanding (1) the data-oriented platform business model, which distinguishes platform tools from earlier cultural tools; (2) the software roots of platform tools; (3) the power asymmetries that impact institutions and individuals, processes, and the timing of tool changes (i.e., creation, maintenance, and deprecation); and (4) the economic, geopolitical, and regulatory environments that demarcate the scope and scale of platform tool use. Next to these more material and institution-oriented issues, a branch of platform studies also engages with the question of "platform labor" and how working for platforms invariably leads to precarious working conditions (van Doorn, 2017). Because our focus in this chapter is on institutional power, in the remainder of this chapter we do not engage with the question of labor, but we do want to highlight that exploring the relationship between the politics of platform tools and digital labor is an underexplored and productive direction for future work.

What then sets platform tools apart from other digital tools, such as word processors (e.g., Microsoft Word) or graphics editors (e.g., Adobe's Photoshop)? After all, the functionalities of digital photo-manipulation tools and video-editing software suites have become more intricate, while their purpose remains the same. At first glance, platform tools seem identical to a long line of software tools (e.g., Avid Media Composer, Adobe Premiere, DaVinci Resolve), many of which became available in the early days of the Web. Earlier in this chapter, we pointed to platform tools always being infrastructurally integrated with platforms. Such integration, via standardized protocols for data exchanges—so-called APIs or application programming interfaces—has a longer history as well. The APIs of Instagram and TikTok are more complex but are also similar in form and function to web APIs from the early 2000s (e.g., Salesforce Lightning API, eBay API). Thus, what has changed and what separates platform

tools from previous generations of software tools is the advent of platform markets, infrastructures, and governance frameworks that, taken together, make cultural production inherently "platform-dependent" (Poell et al., 2021). Let us unpack this.

Platform markets are shaped by data-centered business models common under "platform capitalism" (Srnicek, 2017). Under this accumulative regime of economic power, seemingly all aspects of human life are rendered into commodifiable data, from which platforms extract value by collecting, circulating, and monetizing behavioral information (Mejias & Couldry, 2019). This datafication process, according to Anne Helmond (2015), is sustainable precisely because of platforms' programmable technical architecture. A platform's technical components, such as APIs and software development kits (SDKs), share or "decentralize" platform data collection by having third parties integrate these technical components into their own products and services (Blanke & Pybus, 2020). In turn, this allows platform companies to "recentralize" external data collection by enabling the flow of data between the platform company and third parties, converting external data so that it becomes "platform ready" (Helmond, 2015). This datafication process, theorized by Helmond as "platformization," has been further explored in the realm of mobile media (Nieborg & Helmond, 2019) and cultural production (Poell et al., 2021).

The reason we foreground the concepts of datafication and platformization is because many contemporary software products and services have come to act as platform tools, think of the aforementioned APIs and SDKs, but also game engines and even software suites. That is, the infrastructural integration of the tools owned and operated by platform companies is not only meant to allow for cultural production but also to support the processes of datafication and platformization. The connection between data and tools is not always readily apparent—e.g., Meta's voiceover tool and Snap's dual camera mode are seemingly removed from data extraction. Yet, these tools always inherently exist in platform ecosystems where data is a critical resource for platform companies to generate value. Our definition of platform tools, therefore, includes those resources that operate within the platform's data-oriented business model, such as APIs and SDKs. Accordingly, Meta's voiceover tool and Snap's dual camera constitute platform tools. With the advent of artificial intelligence technologies, tools that gather voices or photos can be harnessed by platform companies to create large datasets for machine learning. In contrast, the open-source audio editor Audacity or the camera of an Apple iPhone both are not

platform tools as they exist outside the economic and infrastructural frameworks set by platform companies. Instead, these two are software tools, which could be pulled into a platform's infrastructural or economic boundaries, and when that happens, they would become platform tools.

As is becoming increasingly clear, platform studies continues to be a highly interdisciplinary endeavor, an amalgamation of—among others—software, game, and infrastructure studies. Let us briefly discuss the influences of these three perspectives on platform studies. As a side note, what we left out thus far in our review of platform studies is the influence of mainstream economics, strategic management, and information systems theory. These fields of study have had a clear impact on platform studies but deserve a more thorough discussion in their own right, which we will do later in this chapter.

First, many platform scholars have had an affinity for *software studies* (Gerlitz et al., 2019; Helmond, 2015; Manovich, 2013)—a subfield that views "software stuff […] as a tool, something that you do something with" (Fuller, 2008, p. 3). The link between platform and software studies remains useful for those interested in material, historical inquiries into platform tools. This intellectual proximity is understandable considering that software studies conceives their object of study as the "software" and hardware that underlie computing systems (Montfort & Bogost, 2009). Hardware brings us to the second field of affinity: *game studies.* As noted by Poell et al. (2021), digital games have historically been "platform-dependent," meaning you cannot develop or play a game without encountering either a hardware platform (e.g., Xbox or PlayStation) or a digital distribution platform (e.g., Steam, the iOS App Store). The MIT Press "Platform Studies" book series edited by Nick Montfort and Ian Bogost serves as a powerful reminder, in the words of the series' editors, of the value in investigating the "underlying computing systems and how they enable, constrain, shape and support the creative work that is done on them" (MIT Press, 2023). Closely related to this body of work is a small but relevant body of work in game production studies (Sotamaa & Švelch, 2021), particularly studies on game engines. The popularity of the essential tools to create virtual worlds, such as Unreal, Unity, and Twine, has resulted in a flurry of insightful studies of the relationship between game engines, creativity, and labor (Nicoll & Keogh, 2019); their political economies (Foxman, 2019); and their implication in the rollout of new "metaverse" technologies such as augmented and virtual reality (Chia, 2022). What all of these studies make clear is that the game industry, and game

engine technology by proxy, remains at the very forefront of important questions pertaining to the economics and politics of platform tools.

Third, over the last decade, platform studies has witnessed a clear infrastructural turn. Publications such as those from Lisa Parks (2012) and Nicole Starosielski (2012) are frequently cited to point to the standardized, ubiquitous, material structures that allow for the production, distribution, marketing, and monetization of cultural content. By bringing *infrastructure studies* into conversation with emerging platform theory, platforms point to the "infrastructuralization of platforms" and the subsequent "platformization of infrastructures" (Plantin et al., 2018, p. 295). The former calls attention to the platform as a necessary and extensive, interoperable network, whereas the latter signals toward infrastructure as a programmable system (ibid.). Platform tools, like platforms, rely on but are also an integral part of such "platform infrastructures," which can be understood as "platform databases and networks, as well as the gateways, interfaces, tools, and associated documentation to access these systems" (Poell et al., 2021, p. 52). Platform scholars' interest in the hidden, if not deemed "boring," part of platform ecosystems helps us assess if tools have become part of or integrated with platform infrastructures, as well as the evolution of such complex systems and networks (Helmond et al., 2019). From a historical perspective, the shift toward asset-light, decentralized platform services is reflected in the ubiquity and structure of platform tools. Here we see how software and infrastructure intersect. The emergence of platform tools can be seen as the latest shift in a longer trajectory theorized as "softwarization," which foregrounds cultural production in the 1960s to early 2010s and encompasses the domain of code, algorithms, and user interfaces in which "physical materials and tools" become software (Manovich, 2013, p. 202). More recently, then, softwarization has come to also include infrastructuralization and platformization.

Next to bringing infrastructural questions into their purview, platform scholars have started to grapple with one of the most important questions facing scholars and policymakers: that of platform power. Through the organization and structure of markets, the accessibility and arrangement of infrastructures, and the ability to set rules and guidelines, the owners of platforms and apps can determine platform access and use (Poell et al., 2021). Such power, it is argued, is not absolute but contingent on the ability to keep both users and creators on board. As such, platform power is considered to be relational (van Dijck et al., 2019), which implies that platforms need to maintain relationships with those who want to access

their infrastructures and, important for our consideration, their tools. More specifically, it is through the governance of platform tools that platform power becomes explicit. "Platform governance" can be loosely defined as the "layers of governance relationships structuring interactions between key parties in today's platform society" (Gorwa, 2019, p. 855). Many permutations of this definition exist, but in essence, stakeholder groups in the platform ecosystem—i.e., platform companies, platform "complementors," and end-users—govern and are governed by others in the ecosystem as well as external economic, social, political, and regulatory factors. For example, TikTok's decisions, including those involving platform tools, are affected by the geopolitics of the region in which the platform operates, which varies widely, from governments refusing TikTok altogether to TikTok building partnerships with government organizations. Technical software histories of tools, such as Flash, discuss the challenges of governing complicated business ecosystems. Such research unpacks how competition impacts software companies' decisions on open standards and development licenses—i.e., access to software tools (Salter & Murray, 2014). These histories can inform research interested in how platform companies and their complementors govern and are governed through platform tools—a clear gap in the platform studies literature.

BUSINESS STUDIES: MULTI-SIDED MARKETS AND PLATFORM BOUNDARIES

A second domain of study that has greatly influenced platform studies is business studies, which we use as shorthand for research conducted across business schools and (mainstream) economics departments. Here we find a diverse array of subfields and foci, including management science, organization science, and entrepreneurship science. What sets these "mainstream" or "orthodox" approaches apart from the heterodox or critical political economic approaches of those in media and platform studies is that the former rarely explicitly address the question of institutional power differentials, and if they do, this would be done in a way that affirms rather than questions the core tenets of neoliberalism and capitalism itself. To not challenge the status quo, of course, is a deeply political decision but one that is rarely acknowledged by business scholars. For some critical scholars, particularly those of a (neo)Marxist bent, the mainstream economic approach has remained out-of-bounds, which, to us, would mark a

missed opportunity. Whatever one's political leanings, the field of business studies has made some profound contributions to our understanding of platform economics.

One of those key insights has been to theorize platforms as "multi-sided markets," where companies facilitate, regulate, and monetize interactions and transactions among multiple groups or "sides" (Rietveld & Schilling, 2021). For example, TikTok facilitates interactions between end-users who pay attention to short-video clips populating one side, and "complementors," in this case advertisers, who target those users on the other side. The task of the platform, then, is to make sure both sides are evenly populated and grow and to devise a business model that charges or subsidizes one side or the other. In advertising-driven platform markets, the revenue derived from advertisers subsidizes access to end-users, who can use platform services free of charge. The question of subsidizing access can be a relevant one when thinking through the politics of tools; for many platforms access to tools is also free in order to engender platform access.

Economists went on to theorize how platform markets are subject to direct and indirect network effects. With direct network effects, more users means more value for the platform. With indirect network effects, as one side of the platform grows (e.g., increase in the number of end-users), another side (e.g., complementors) benefits. To jumpstart network effects, platforms want the costs to access a platform as low as possible, which again plays into the question of tool access. A platform with subpar tools will find it much more difficult to attract high-quality cultural creators. For example, Meta has recognized the economic value that tool-focused platforms present and responded accordingly with Instagram Reels—a 2020 short-form video app with regularly updated platform tools which closely resemble tools supplied by TikTok. Strategic management scholars in particular have expounded the variables that inform platform growth. Much of this scholarship can be found in a series of review articles (Rietveld & Schilling, 2021).

A more recent intervention in economic platform theory concerns the notion of "platform boundaries" (Gawer, 2021). While there is no conceptual consensus on the exact nature of a platform boundary, broadly speaking, boundaries are those resources provided and decisions communicated to complementors by platform companies. Subsequently, management scholars, the strategists they are, honed in on the question of governance over such resources and decisions. As platform companies

make "boundary decisions," they "strategically demarcate their resources and assets, which they govern differentially" (Gawer, 2021, p. 2). Platform tools are a clear example of a company providing resources and their associated governance frameworks. As may have become apparent, many debates and concepts in business studies align with and overlap with those in platform studies, as both center on data exchanges between platform companies and their complementors. The decision to what extent a platform's boundaries are either open or closed, and to whom, is a constant process. For example, a platform in its nascent stages is more supportive of the complementor population (such as content creators) but switches to supporting or subsidizing end-users as a platform takes a more dominant market position (Rietveld et al., 2020). There are many other boundary decisions on the part of platform companies, such as which exact assets and resources (including platform tools) to acquire, the scope of activities to be conducted by complementors, and what types of labor to allow for. For example, Google's scope has expanded significantly over the last decade by acquiring numerous assets and hiring many workers in contract, part-time, and full-time positions (Gawer, 2021). TikTok, on its part, expanded its scope when it started to invest in e-commerce and partnered with the Canadian platform Shopify. This boundary decision translated into increasing the economic capabilities of TikTok as a platform tool, as the company introduced product tags for its e-commerce venture in its in-app editor, allowing creators to better "monetize" their clips.

Information Systems: Boundary Resources

While platform and business studies tell us more about the institutional relationships that shape the environment and politics of platform tool use, they rarely analyze tools. This brings us to a handful of studies emerging from information systems studies (IS), a field that is highly complementary to both platform and business studies, as it helps scholars to deepen their understanding of how platform tools are governed and the subsequent consequences for platform companies and third parties. IS relies on an understanding of platforms as open technical infrastructures or software-based "extensible codebase[s] to which complementary third-party modules can be added" (de Reuver et al., 2018, p. 127) and, for the most part, focuses on the more generic notion of "developers," not cultural producers. Regardless, the field remains invaluable for scholars interested in platform tools because of one of its conceptual contributions,

"boundary resources" (Ghazawneh & Henfridsson, 2013). This framework presents a concrete typology for categorizing and classifying tools by their functions and effects and therefore can be productively applied to platform tools involved in cultural production.

More specifically, "boundary resources" are those "software tools and regulations that serve as the interface for the arm's-length relationship between the platform owner and the application developer" (Ghazawneh & Henfridsson, 2013, p. 176). A more granular model divides boundary resources into the technical and the social. "Technical boundary resources" enable the development of and access to the platform's data infrastructure—e.g., APIs, SDKs, plug-ins, filters, and effects, whereas "social boundary resources" supply knowledge on how to use technical boundary resources—e.g., developer guidelines, training material, and intellectual property rights (Dal Bianco et al., 2014; van der Vlist & Helmond, 2021). Technical boundary resources can be broken into "application boundary resources," which provide software functionality, and "development boundary resources," which assist developers in creating and maintaining applications (Dal Bianco et al., 2014). For example, TikTok's Video Kit, which enables the sharing of videos and photos from external apps, is an example of a technical (and development) boundary resource, and its associated developer documentation is an example of a social boundary resource.

Taking a clear cue from strategic management scholarship, IS scholars also observe that platform companies go back and forth on the openness or level of access to resources. This gatekeeping process has been theorized as a "distributed tuning process," where access is informed by the actions of a "heterogeneous" group of complementors (Eaton et al., 2015). That is, creators or app developers in their role as complementors and the platform company balance control with innovation by either "securing" boundaries or "resourcing" complementors (Ghazawneh & Henfridsson, 2013). When platform companies *secure* boundaries, they can reduce or remove access to tools, thereby gaining more control over third-party development. Before the advent of social media platforms, this inclination was conceptualized as "appliancization," a process in which platforms lock down or "tether" services, thereby preventing adjustments, repurposing, or tampering (Zittrain, 2008). Conversely, *resourcing* increases access to boundary resources to spur innovation and grow the complementor "side" in the market. When the process of resourcing is led by the platform company, it is deemed "diversity resourcing," whereas

actions taken by complementors are seen as "self-resourcing" (Ghazawneh & Henfridsson, 2013). One concern for critical platform scholars is that your average complementor tends to have few avenues to exercise institutional power, as platform power is inherently asymmetrical and multidirectional (van Dijck et al., 2019). That said, cultural producers are not completely powerless; they can engage in forms of resistance through the modification of boundary resources or via the creation of platform tools unsanctioned by platform owners—or what we dub *unofficial platform tools.* For example, third-party developers downloaded third-party applications onto the iPhone by using software exploits to "jailbreak" the iPhone, challenging Apple's attempt to secure its platform boundaries; jailbreaking allowed for circumventing the mandated application review process (Ghazawneh & Henfridsson, 2013). The scope and usage of the politics of refusal, opposition, and alternative tools remains unclear. To spur such research and to get a better sense of the current state of the art in platform scholarship, next we will survey the objects of research of the three aforementioned fields and their main methods.

Analyzing Platform Tools: Objects of Study and Methods

Earlier in this chapter we specified how the term "platform tools" can become exceedingly generative when contextualized and complicated by platform studies, business studies, and information systems. This section delves into the particulars of these three fields—i.e., their objects of study and methodologies—to gesture toward modes of analyzing platform tools. The three subjects have overlapping areas of focus but rarely coalesce. Business studies and information systems interact on occasion, which is expected considering that these fields have a longer history of working together and thinking critically about their relationship (Galliers & Leidner, 2014). We recommend that those studying platform tools integrate these three disciplines, adopting an interdisciplinary approach (Table 2.1). Here, interdisciplinarity (1) broadens the study of platform tools from end-users and user-generated content; (2) reimagines tools as dynamic processes, not objects; and (3) attends to the materiality, historicity, technicity, and relationality of platform tools.

Most closely related to research specifically focused on cultural production tools is research on platform software objects (e.g., interfaces, APIs,

Table 2.1 Summarizing approaches to studying platform tools

	Platform studies	*Information systems and business studies*
Objects of study	*Tools*	
	• APIs	• Service systems
	• SDKs	• Networks
	• Interfaces	• Hardware
	• Video editors	• Software
	• Visual effects and filters	• Data
		• Procedures
	Groups	
	• End-users	• System owners
	• Content creators	• Third-party developers
	• Platform companies	• Business firms
	Processes	
	• Platformization	• Distributed tuning
	• Datafication	• Resourcing
		• Securing
Methods	*Approach*	
	• Individual case studies	• Individual case studies
	• Comparative case studies	• Comparative case studies
	Data collection and analysis	
	• Digital ethnography	• Analytical modeling
	• Financial analysis	• Intracase and intercase analyses
	• Institutional analysis	• Content analysis
	• Walkthrough method	
	• Content analysis	

SDKs) and associated hardware (e.g., Gerlitz et al., 2019; Helmond, 2015; Montfort & Bogost, 2009). Platform scholars recognize that these technical components are part of larger platform ecosystems, which consist of transactions and connections between platforms, apps, and networked infrastructures. By examining these objects, platform researchers have pointed to platformization (i.e., the extension of platform logic into the web and cultural industries), datafication (i.e., the conversion of human life and experience into quantitative, commodified data), and infrastructuralization (i.e., the transition from platforms as technologies to essential socio-economic systems) as processes that motivate and inform platform governance—and as we argue—platform tools.

PLATFORM STUDIES

Mapping how data-oriented platform infrastructures converge has unearthed changing power relations among cultural producers, governments, and platform companies (Helmond et al., 2019; Plantin et al., 2018). For platform scholars that investigate cultural production, inquiries into power and governance surface questions on digital labor, creator agency, and resistance (Duffy, 2017; O'Meara, 2019). Here, platform studies is helpful because it centers creators and developers who use platform tools. Scholars that contemplate the institutional relationships between platforms and cultural production diverge in the kinds of industries and objects they study. Examples include platforms that are reliant on visuals (Leaver et al., 2020), audio (Hesmondhalgh et al., 2019), games (Chia, 2022; Foxman, 2019), and short-form videos (Kaye et al., 2022). As such, the field has become attentive to a wide array of objects and processes. Some of this work is rooted in the more siloed subfields of media studies, such as music studies or game studies, but increasingly, there are cross-disciplinary conversations across industry segments as platform companies tend to be (media) industry agnostic.

Frequently, platform scholars employ multi-method approaches. They vary as to whether they conduct individual case studies or comparative studies. Their exact methods depend on their object or process of interest and the availability and accessibility of data sources. Thus far, platform researchers have employed ethnographic approaches (Bonini & Gandini, 2020), political economic approaches that incorporate institutional and financial analysis (Nieborg & Helmond, 2019), media historiography (Egliston & Carter, 2022), and, increasingly, the "walkthrough method" (Light et al., 2018). They have used data sources, including interviews (Duffy, 2017), surveys (Myers West, 2018), social media posts (Pearce et al., 2020), corporate and financial documents (Nieborg & Helmond, 2019), and developer forums (Greene & Shilton, 2018). A more comprehensive overview of different approaches to unearth historical platform data can be found in an overview by Anne Helmond and Fernando van der Vlist (2019). What all of these studies go to show is the vibrancy of platform-focused research, as well as the vast troves of platform data available. In other words, the study of platform tools is well positioned to benefit from the recent, high-quality data and scholarship on platforms and apps.

Business and Information Systems Studies

Although business studies, specifically information systems and strategic management, have their own distinct journals and conferences, scholars often traverse these two subfields to analyze platform markets and governance. Information systems research, as the name implies, reviews information systems which in the digital age consist of infrastructure; networks; hardware; software; data; procedures; and system owners, designers, and users (de Reuver et al., 2018). Strategic management is similarly concerned with organizations and their decision-making processes but places greater emphasis on extracting economic value for organizations, mainly business firms (Nag et al., 2007). The platform company, then, has become the main unit of analysis as scholars attempt to understand the monetary and data exchanges among platform companies, their complementors (i.e., groups with products or services that add value to the platform's customer base), and end-users. For example, how platforms harness network effects has received a great deal of attention (McIntyre & Srinivasan, 2017), as has the question of how to balance openness with control in a competitive environment (Boudreau, 2010). Because platforms are seen as dynamic entities, platform strategies are increasingly exploring the question of platform evolution (Gawer, 2021).

Both information systems and strategic management are relatively nascent fields. The former stems from 1960s' applied computer science studies, whereas the latter emerged from business policy in 1979 (Avgerou, 2000; Nag et al., 2007). Over time, both disciplines grew to encompass diverse theories and methodologies. Approaches incorporate empirical measurements of platform performance, competition, and usage (Cennamo & Santalo, 2013); intracase and intercase analyses (Kazan et al., 2018; Rietveld et al., 2020); and analytic modeling of platform ecosystems (Panico & Cennamo, 2022). While methods range, disciplinary vocabularies have remained relatively consistent and therefore relevant for platform tool scholars. Lastly, one of the most promising and recent interventions has been the aforementioned framing of platform tools as "boundary resources," where in-depth case studies of mobile platforms and their associated data provide rich, empirical data for theory building (Ghazawneh & Henfridsson, 2013; Eaton et al., 2015).

Conclusion

This chapter has foregrounded "platform" tools because of their importance for cultural production—its format, its growth, its impacts, and its consequences, in our data-saturated and data-driven platform society. Neglecting platform tools means disregarding the tools that develop (1) the cultural material that defines our digital cultures and (2) the work that underlies the creation of cultural products. We started with the premise that if one wants to better understand the everyday cultural practices of billions of social media users, we need to *also* grapple with the question of institutional power. Such an approach suggests a political economic perspective, which includes surveying a company's business models, its infrastructure, and its governance frameworks. Taken together, these drivers of institutional power become explicit, tangible, and visible when cultural producers use platform tools. That is, the institutional power wielded by platform companies becomes explicit and can be studied through platform tools. This is not to say platforms are omnipotent and users have no power; it is through the study of platform tools that we can better understand how institutional platform power is negotiated, exercised, or rejected.

How to situate research on platform tools in the wider fields of research that study the platform in all of its facets? On the one hand, platform-dependent cultural commodities are the outcome of complex decision-making in equally complicated economic, social, and political environments (Nieborg & Poell, 2018). Interrogating platform tools serves as one of the empirical approaches to untangle the relationship between platform companies, platform competitors, and the various other sides of so-called multi-sided markets (e.g., advertisers, cultural creators), while keeping in mind the backdrop against which platform tools—and as a result, cultural products—are created, modified, and deprecated. Besides competing companies, geopolitical shifts, public outcry, and regulatory requests all push constant changes to platform tools. Accordingly, platform tools as an area of study encourage historiographic sensitivities, which help scholars distinguish between new and derived tools and, in rare cases, stable tools. On the other hand, platform tools are the tools of an increasingly popular trade, especially with a post-pandemic labor force searching for seemingly flexible and passion-driven work. At a moment when labor rights, regulations, and standards are lacking for creators engaged in platform-dependent work, changes to platform tools pose risks and uncertainties for all involved (Poell et al., 2021). Therefore, mapping how tools are managed in

platform ecosystems can reveal areas where creators may benefit from policies protecting their labor. While we have not focused on labor in this chapter, ultimately, future work might distill the impacts of platform tool management on platform-dependent creators of cultural content, including those who create from marginalized positions. Research that examines the relationship between the politics of platform tools and digital labor is generative and productive, bridging gaps across platform studies, business studies, and information systems.

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