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PLATFORMS, POWER & ADVERTISING: ANALYSING RELATIONS OF DEPENDENCY IN THE MOBILE DIGITAL ADVERTISING ECOSYSTEM

David B. Nieborg
University of Toronto

Thomas Poell
University of Amsterdam

Introduction

One of the main drivers of the global platform economy, if not the digital economy at large, is digital advertising. Because of its size—an economy of over $600+ billion globally—even a miniscule stake in this complex ecosystem translates into a significant revenue stream. As a result, a wide range of institutional actors—platform companies, technology start-ups, data intermediaries, ecommerce and retail giants, and others—have vied for control not only over market share, but also over measurement standards and tracking infrastructures (Crain, 2021; Turow, 2011). Fueling the already dynamic nature of the digital advertising industry is the ability of new market entrants to either aggregate demand (i.e., eyeballs or consumers) and/or supply (i.e., ad inventory or 'impressions' to sell). In other words, the digital advertising ecosystem is relatively open. Launching new companies—e.g., new digital advertising networks or companies that provide services related to targeting, attribution, or (data) optimization—is far from impossible.

Yet, despite agreed-upon industry standards and low barriers to market entry, like most sectors of the platform economy, a handful of institutional actors has an outsized influence and can exert outsized control over the industry's direction (Srnicek, 2017). For example, Google and Facebook rake in half of global digital advertising revenues, whereas Amazon, Tencent, Microsoft and Apple are all rapidly gaining market share. This paper, then, examines how dominant institutional actors exercise power and

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control over the digital advertising ecosystem. It pursues this inquiry through a case study on the 2021 introduction of Apple's App Tracking Transparency (ATT) feature—a privacy setting newly integrated in the operating system of iOS mobile devices. This case study allows us to examine: 1) how infrastructural control is nested and sits at different layers of the 'ad stack', and (2) how the mass diffusion of mobile devices has shifted the loci of control in the broader advertising ecosystem.

Our work builds on scholarship situated at the intersection of advertising studies (Crain, 2021; McGuigan, 2019), and platform studies (Blanke & Pybus, 2020; Helmond et al., 2019). This work allows us to take a critical approach to analyze the uneven distribution of institutional power, which includes market power, infrastructural power, and discursive power (Broughton Micova & Jacques, 2020; van Dijck et al., 2019). One of the key insights in platform studies concerns the economic and infrastructural reach of platform companies. Via a process theorized as 'platformization,' platforms are said to extend beyond their own infrastructural boundaries by ways of integrations in external apps and platforms (Helmond, 2015). Software Development Kits (SDKs) provided by platform companies and integrated in third party apps, allow for a constant stream of 'platform ready' data (Blanke & Pybus, 2020; Helmond, 2015). Building on these insights, we examine how platformization is operationalized in the mobile digital advertising ecosystem by asking: How do dominant market actors exercise control over the infrastructural layers of the 'mobile ad stack' and how do they gain access to end-user data?

Analyzing infrastructural services

The underlying business proposition driving digital advertising is remarkably simple. At its core, app-based advertising is a prototypical two-sided market, connecting a supply- or sell-side (e.g., static display ads or videos on mobile devices) with a demand- or buy-side populated by billions of corporations and institutions seeking the attention of end-users. Yet, this seemingly simple process of: matching the 'right' set of eyeballs with a 'relevant' ad (i.e., targeting); of being able to also track and check this matching process (i.e., attribution); and of optimizing the matching process, has spawned a global, data-driven ecosystem. In the early 2000s, the introduction of 'programmatic' (i.e., automated) buying and selling of ads and doing so at scale favored large-scale aggregation and the ability to control key infrastructural services, which explains the rise of a handful of dominant companies (Bailey et al., 2022).

This is where the Apple's App Tracking Transparency framework becomes relevant as it directly intervenes in the ability of dominant actors in the mobile digital advertising ecosystem to aggregate specific data points and control infrastructural services. To gain a better insight how changing a seemingly simple privacy setting tucked away in an iPhone or iPad can have such an outsized ripple effect, we use a mix-methods approach that involves (1) analysis of developer documentation provided by Apple, (2) a

review of ongoing litigation, and (3) analysis of financial disclosure forms of two ad-driven platforms Meta and Snapchat. Our case takes the introduction of the ATT feature during Apple's annual Worldwide Developers Conference (WWDC) in June 2020 as its starting point.

Evolving power relations in digital advertising

More so than their competitors, Facebook and Google, each in their own way, have been highly successful in their ability to aggregate both ad inventory *and* accurate, real-time user data. They benefit from billions of users frequenting their digital properties (e.g., Google Search, YouTube, Instagram, and Facebook), but also from their ability to leverage the aforementioned process of platformization. Facebook's advertising SDKs are integrated into popular apps and their 'social plug-ins,' such as login buttons, extend the platform's infrastructural reach deep into the app economy (Nieborg & Helmond, 2019). For those concerned about privacy, the ability of Facebook to follow the actions of individual end-users in and across various apps poses immediate concerns.

Important in terms of public perception, the ATT framework addressed those concerns. Before ATT, platforms, such as Google and Facebook, had access to an iOS-powered device's Identifier for Advertisers (IDFA). While anonymized, this persistent identifier allowed advertising platforms to match in-app actions with device-specific profiles and 'sell' those to advertisers. The introduction of iOS 14.5 in April 2021 switched the IDFA off by default, resulting in the majority of iOS users to stay opted-out of this kind of device tracking. Of course, another way to view the introduction of ATT is to see it as an attempt by Apple to gain control over end-users' mobile data. As a result, Facebook's behavioral profiles have become less accurate, which immediately translated into a drop in ad revenue.

The introduction of ATT serves as a powerful reminder of the layeredness of infrastructural power and that "even the largest platforms depend on the technical productions of others" (Blanke & Pybus, 2020: 11). At the same time, the history of the advertising business has shown numerous examples of disruptive innovations and behavioral shifts on the part of end-users; e.g., the introduction of digital video recorders, the use of ad-blockers in browsers, or web browsers blocking "third-party" tracking cookies. The rollout of ATT and its subsequent shifts in revenue and data, therefore, demonstrate the relational and constantly evolving nature of institutional power in the mobile advertising ecosystem.

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