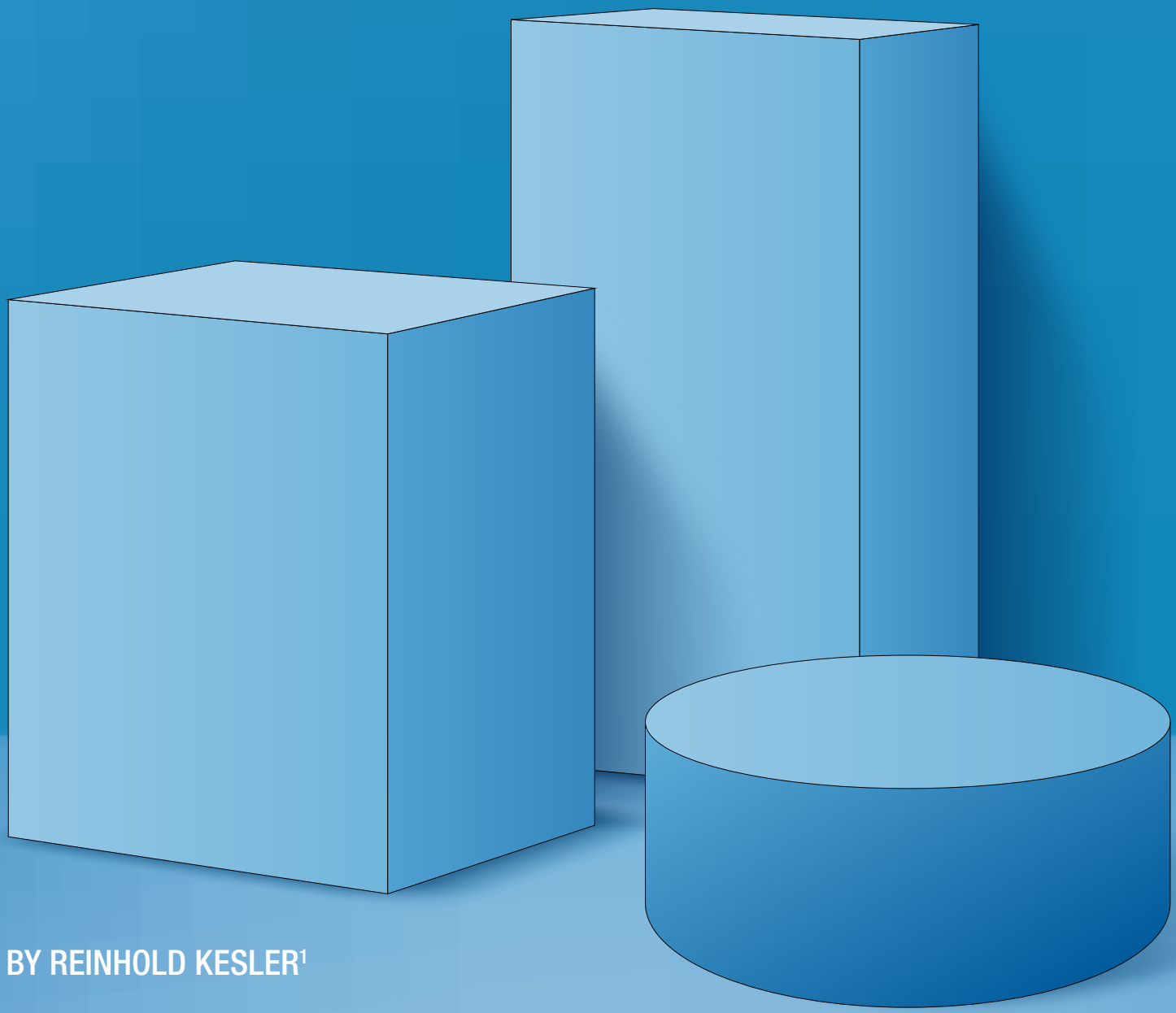
DIGITAL PLATFORMS IMPLEMENT PRIVACY-CENTRIC POLICIES: WHAT DOES IT MEAN FOR COMPETITION?



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DIGITAL PLATFORMS IMPLEMENT PRIVACY-CENTRIC POLICIES: WHAT DOES IT MEAN FOR COMPETITION?

By Reinhold Kesler

The data economy, which is the basis for many digital products and services, has been recently facing headwinds by a number of regulations worldwide that aim to better protect user privacy. Notably, digital platforms now increasingly often announce and implement privacy-centric policies. In this article, Apple's App Tracking Transparency ("ATT") is studied as a representative example of such. Following a brief description of the policy, the remainder of the article primarily reviews the current state of research and investigations by competition authorities to provide insights on the possible effects of the privacy change. While the focus is on the implications the policy has for competition in Apple's mobile ecosystem, the article also highlights the platform's role in deciding potential winners – including themselves – with its implementation of the policy and discusses weighing the potential costs against the benefits through improved user privacy.

I. INTRODUCTION

In recent years, several regulations worldwide came into effect that aim to better protect user privacy and, by this, set limits to the data economy that fuels many digital products and services, e.g., through targeted advertisements. Interestingly, digital platforms increasingly often enact privacy-centric policies, too. In this article, Apple's privacy change called App Tracking Transparency ("ATT") is studied as a representative example of such. Following a brief description of the policy, the remainder of the article primarily reviews scientific studies and investigations by competition authorities on the ATT while also relating to relevant research on privacy changes from the past to provide insights on the possible effects of Apple's privacy policy. While the focus of this article is on the implications the policy has for competition in Apple's mobile ecosystem, the platform's role and possible privacy benefits are also considered.

II. CASE IN POINT: APPLE'S APP TRACKING TRANSPARENCY ("ATT")

Today's primarily advertisement-funded Internet is increasingly often facing regulatory headwinds that set boundaries to the data economy at play. Regulatory efforts in place like the European General Data Protection Regulation ("GDPR") or those underway aim to better protect user privacy and mitigate the tracking of users that makes advertisements valuable. In that vein, digital platforms have already implemented or are about to introduce privacy-centric changes that foresee mitigating or the end of third-party tracking. Several studies in the past showed advertisement revenues to decrease with limited tracking abilities (see Section III for an overview). Wernerfelt et al. (2022), for a recent example, provide evidence for this so-called offsite data on users, which is shared across applications, to be important for advertisers on Meta.[2] The authors find costs to acquire new consumers through targeted advertisements to distinctively increase without access to such.

A case in point for a restriction on combining data across apps and websites is Apple's privacy change, called App Tracking Transparency. It came live with the iOS version 14.5 in April 2021 and involves a one-time prompt for each user of an app that explicitly asks for the consent to track outside the app in case the developer chooses to. Disallowing the tracking – and most users do so (until today) according to mobile analytics companies – leaves the app developer without the identifier for advertisers ("IDFA") of the respective user.[3] This identifier, however, serves to tailor advertising campaigns and to attribute the success of advertisement campaigns to specific users, thereby making advertisements more valuable. Consequently, both monetization from advertisements and acquiring (new) users through advertisements become more difficult in the post-ATT world. The relevance of this privacy change and the loss in tracking can already be seen anecdotally by reported revenues. The most popular firm to name is Facebook, with a loss of USD 10 billion in advertisement revenues in the year following the ATT,[4] while app developers disclosed decreases in the range of at least 15 to 20 percent (Competition and Markets Authority, 2022).[5]

This encourages a more systematic assessment of the impact of Apple's privacy change as one example of a platform-initiated privacy change. Specifically, it raises the question about the implications this policy has for competition, which is at the heart of the following sections.

III. CONSEQUENCES FOR COMPETITION

As outlined in Section II, Apple's policy limits business models revolving around targeted advertisements and puts the viability of business models at risk that rely on tracking through the IDFA. This affects market participants differently and potentially changes the competitive landscape, with winners and losers arising from the platform's privacy change. Following the ATT, changes in the business model by app developers may be expected. More specifically, a possible reduction in revenue along with rising costs may make app developers adjust their decisions to monetize and develop with the two main revenue sources being advertisements and in-app payments in the market for mobile applications.[6] The few studies that investigated the impact of the ATT along with previous related research shall provide some first insights onto the consequences for competition.

2 Wernerfelt, Nils, Anna Tuchman, Bradley Shapiro, & Robert Moakler, *Estimating the Value of Offsite Data to Advertisers on Meta* (Becker Friedman Institute for Economics Working Paper No. 114, 2022).

3 Flurry Analytics, *App Tracking Transparency Opt-In Rate - Monthly Updates* (May 2, 2022), https://www.flurry.com/blog/att-opt-in-rate-monthly-updates/.

4 Kif Leswing, Facebook says Apple iOS privacy change will result in $10 billion revenue hit this year (February 02, 2022), https://www.cnbc.com/2022/02/02/facebook-says-apple-ios-privacy-change-will-cost-10-billion-this-year.html.

5 Competition and Markets Authority, *Mobile Ecosystems Market Study* (Final Report, 2022).

6 Flurry Analytics, *Are App Developers Shifting Revenue Models as Advertising Gets Challenged?* (August 13, 2020), https://www.flurry.com/blog/are-app-developers-shifting-revenue-models-as/.

As a starting point, Kraft et al. (2022) provide empirical evidence of a reduction in the tracking of users on Apple and consequentially also in apps' advertisement revenues following the ATT based on data from a provider enabling publishers to run mobile advertisement campaigns.[7] This is in line with previous studies showing a decrease in advertisement revenues when making it more costly or impossible to track users, be it through privacy policies (Tucker, 2012, 2014)[8] or disabling cookies (Goldfarb & Tucker, 2011; Johnson et al., 2020; Marotta et al., 2019).[9]

This pattern also holds for broader regulations such as the GDPR as found by several studies (Goldberg et al., 2022; Schmitt et al., 2021)[10] along with other research showing that data collection becomes more difficult (Aridor et al., 2022; Godinho de Matos & Adjerid, 2022).[11]

Given the decrease in advertisement revenue, a study that I am currently working on looks at whether app developers turn towards alternative revenue sources, which are payments.[12] Comparing apps on Apple with apps on Google, I find an effect, albeit small, that suggests app developers turn towards upfront payments and in-app payments following the ATT. Importantly, the impact is more pronounced for apps only active on Apple and those tracking through the identifier restricted, while apps born after the privacy change also include payments more often than pre-ATT.

A more drastic measure for the viability of a business model is the decision by app developers to enter or exit. In this regard, Li & Tsai (2022) find a decrease in the entry of new apps on Apple following the ATT enactment.[13] Relatedly, Kircher & Foerderer (Forthcoming) study the ban of targeted advertisement in the setting of children's games on Google's Play Store and find a substantial increase in app abandonment.[14] Following the GDPR, Janssen et al. (2022) also find a massive exit of apps on Google's Play Store, but the more consequential finding is the decrease in the entry of new apps, thereby quantifying a distinctive loss in welfare due to the unpredictability of success for apps.[15] Investments by venture capital in new and emerging firms, as another indicator for the viability of entrants, have been found to be reduced in the European technological sector relative to the United States after the GDPR enactment (Jia et al., 2021).[16] Finally, in the context of the GDPR, research also showed an increase in the market concentration of web technology services toward the main players, which comprise Google and Facebook (Batikas et al., 2022; Johnson et al., 2022).[17]

These various pieces of evidence for changes in monetization and development decisions, as well as the resulting impact on the competitive environment, already suggest the presence of winners in the wake of Apple's privacy change. Obviously, app developers less or not relying on tracking (via the restricted identifier) are hardly affected, which has already been shown for the likelihood to turn towards payments in my study.[18] However, less attention has been given to studying hypotheses made by industry people that the size of a firm along with its first-party

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7 Kraft, Lennart, Bernd Skiera, & Tim Koschella, *Economic Impact of Apple's App Tracking Transparency (ATT)* (Working Paper, 2022).

8 Tucker, Catherine, *The Economics of Advertising and Privacy*, International Journal of Industrial Organization, 30 (3), 326–329 (2012); Tucker, Catherine, *Social Networks, Personalized Advertising and Privacy Controls*, Journal of Marketing Research, 51 (5), 546–562 (2014).

9 Goldfarb, Avi & Catherine Tucker, *Privacy Regulation and Online Advertising*, Management Science, 57 (1), 57–71 (2011); Johnson, Garrett, Scott Shriver, & Shaoyin Du, *Consumer Privacy Choice in Online Advertising: Who Opts Out and at What Cost to Industry?*, Marketing Science, 39 (1), 33–51 (2020); Marotta, Veronica, Vibhanshu Abhishek, & Alessandro Acquisti, *Online Tracking and Publishers' Revenues: An Empirical Analysis* (Working Paper, 2019).

10 Goldberg, Samuel, Garrett Johnson, & Scott Shriver, *Regulating Privacy Online: An Economic Evaluation of the GDPR* (Working Paper, 2022); Schmitt, Julia, Klaus M. Miller, & Bernd Skiera, *The Impact of Privacy Laws on Online User Behavior* (Working Paper, 2021).

11 Aridor, Guy, Yeon-Koo Che, & Tobias Salz, *The Effect of Privacy Regulation on the Data Industry: Empirical Evidence from GDPR* (NBER Working Paper No. 26900, 2022); de Matos, Miguel Godinho & Idris Adjerid, *Consumer Consent and Firm Targeting After GDPR: The Case of a Large Telecom Provider*, Management Science, 68 (5), 3175–3973 (2022).

12 Kesler, Reinhold, *The Impact of Apple's App Tracking Transparency on App Monetization* (Working Paper, 2022).

13 Li, Ding & Hsin-Tien Tsai, *Mobile Apps and Targeted Advertising: Competitive Effects of Data Exchange* (Working Paper, 2022).

14 Kircher, Tobias & Jens Foerderer, *Ban Targeted Advertising in Apps? An Empirical Investigation of the Consequences for App Development*, Management Science (Forthcoming).

15 Janssen, Rebecca, Reinhold Kesler, Michael Kummer, & Joel Waldfogel, *GDPR and the Lost Generation of Apps* (NBER Working Paper No. 30028, 2022).

16 Jia, Jian, Ginger Zhe Jin, & Liad Wagman, *The Short-Run Effects of the General Data Protection Regulation on Technology Venture Investment*, Marketing Science, 40 (4), 661–684 (2021).

17 Batikas, Michail, Stefan Bechtold, Tobias Kretschmer, & Christian Peukert, *Regulatory Spillovers and Data Governance: Evidence from the GDPR*, Marketing Science, 41 (4), 235–441 (2022); Johnson, Garrett, Scott Shriver, & Samuel Goldberg, *Privacy & Market Concentration: Intended & Unintended Consequences of the GDPR* (Working Paper, 2022).

18 Kesler, *supra* note 12.

data becomes increasingly important in a post-ATT world. Nevertheless, based on the above-mentioned studies, in the long-run, users will likely be faced with a different as well as potentially decreased choice set of available products and possibly weakened competition.

IV. DISCUSSING THE PLATFORM'S ROLE

Although there have been many privacy policies enacted in the past, a notable difference is that platforms now increasingly often motivate and implement such changes themselves, thereby (un-)intentionally deciding potential winners – including themselves. The ATT makes no exception, with policy makers being concerned with the implementation and the corresponding impact. For instance, the Competition and Markets Authority in the United Kingdom lists in its Mobile Ecosystems Market Study various factors:[19] It criticizes the choice architecture of the ATT prompt that is untested and different compared to personalized advertisements served by Apple. While it acknowledges the impact on targeted advertisements, it also states the concerns that the ATT potentially favors Apple's own advertisement services over others and protects Apple's market power for app distribution. Indeed, some of these potential double standards by Apple have been empirically studied by Kollnig et al. (2022) for apps in the United Kingdom app store.[20] They note that Apple makes and enforces app store policies with its definition of tracking exempting its own advertisement technology. The authors find Apple to have access to unique data, giving another edge to its market position and advertising service. Anecdotally, Apple's current expansion of its advertisement business is increasingly often seen as a self-serving practice following the implementation of the ATT. Examples found in news reports comprise the increasing importance of Apple Search Ads, additional advertisement spots within the app store, and numerous job listings devoted to advertisements.[21]

These observations are complemented by investigations of competition authorities in several countries, some of them based on complaints by publishers.[22] While the French competition authority did not block the policy change by Apple before the introduction, it chose to further investigate the case. The competition authority in Germany with its investigation on self-preferencing by Apple through ATT is also still pending.[23] The latter investigation raises concerns with respect to the combination of data as well as a potential reduction in user choice of apps financed through advertisements. In a broader context, regulations prohibiting self-preferencing of large digital platforms are on the horizon on both sides of the Atlantic. In the European Union, the Digital Markets Act will be enforced in 2024 at the latest, and Apple, as a gatekeeper, will thus face greater scrutiny. In the United States, the American Innovation and Choice Online Act is also well underway. Based on the concerns raised, it begs the question of whether the upcoming regulations may level the playing field.

V. ACCOUNTING FOR PRIVACY BENEFITS

Given the above-mentioned costs of privacy changes such as the ATT, it is still important to weigh them against the benefits of the policy change with regard to users' privacy for a complete evaluation of the policy. However, in the past, the value of user privacy has been found difficult to measure reliably. This was often attributed to the so-called privacy paradox, which corresponds to the dichotomy between (stated) privacy attitudes and actual privacy behavior.[24] As an illustrative example, valuations for allowing privacy-sensitive permissions for mobile applications inferred from observational data differ from the valuations of choice experiments by a factor of ten.[25] Acquisti et al. (2016) argue that the privacy paradox may arise due to various decision-making hurdles users typically face with asymmetric information, bounded rationality, and heuristics at play in the online setting.

19 Competition and Markets Authority, *supra* note 5.

20 Kollnig, Konrad, Anastasia Shuba, Max Van Kleek, Reuben Binns, & Nigel Shadbolt, *Goodbye Tracking? Impact of iOS App Tracking Transparency and Privacy Labels*, FAccT '22: 2022 ACM Conference on Fairness, Accountability, and Transparency, p. 508–520 (2022).

21 Patrick McGee, *Apple plans to double its digital advertising business workforce* (September 04, 2022), https://www.ft.com/content/db21685b-d4dd-421d-95ac-980e9d40c05c.

22 Autorité de la Concurrence, *Targeted advertising: no urgent interim measures against Apple but the Autorité continues to investigate into the merits of the case* (March 17, 2021), https://www.autoritedelaconcurrence.fr/en/article/targeted-advertising-no-urgent-interim-measures-against-apple-autorite-continues.

23 Bundeskartellamt, *Bundeskartellamt reviews Apple's tracking rules for third-party apps* (June 14, 2022), https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2022/14_06_2022_Apple.html.

24 Acquisti, Alessandro, Curtis Taylor, & Liad Wagman, *The Economics of Privacy*, Journal of Economic Literature, 54 (2), 442–92 (2016).

25 Kummer, Michael & Patrick Schulte, *When Private Information Settles the Bill: Money and Privacy in Google's Market for Smartphone Applications*, Management Science, 65 (8), 3470–3494 (2019); Savage, Scott J. & Donald M. Waldman, *Privacy Tradeoffs in Smartphone Applications*, Economics Letters, 137, 171–175 (2015).

Notably, in a more recent study, Bian et al. (2022) found consumers demand less with the disclosure of data collection by apps, which has been mandated by Apple since December 2020 in a fashion similar to nutrition labels consisting of the nature and purpose of data collected.[26] This specific context of privacy labels may show that the way how such information is brought to users seems to be important. In that regard, with ATT giving a straight-forward task and the majority of users opting out, this may be another instance that suggests a distaste for third-party tracking and an improvement in users' privacy.

Hence, it is important to assess how much value is necessary to offset welfare losses through the costs arising from such privacy changes. In future policy evaluations, these types of assessments would be helpful as privacy increasingly often becomes an antitrust issue in the last few years.

VI. CONCLUSION

In this article, Apple's App Tracking Transparency has been studied as an example of a privacy-centric policy enacted by a digital platform and its impact on competition. Following a review of the current state of research, several pieces of empirical evidence seem to suggest a weakened competitive environment in the long run as a result of Apple's privacy change undermining targeted advertisements. Importantly, the article highlights the platform's role in deciding potential winners – including themselves – with its implementation of the policy and stresses weighing the potential costs against the benefits through improved user privacy. All of this may serve as a starting point, both from a scientific and a policy perspective, on what to expect and consider about the upcoming privacy-preserving changes enacted by digital platforms.

26 Bian, Bo, Xinchen Ma, & Huan Tang, *The Supply and Demand for Data Privacy: Evidence from Mobile Apps* (Working Paper, 2022).

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