



The future of anticompetitive self-preferencing: analysis of hypernudging by voice assistants under article 102 TFEU

Viktorija Morozovaite

To cite this article: Viktorija Morozovaite (2023) The future of anticompetitive self-preferencing: analysis of hypernudging by voice assistants under article 102 TFEU, European Competition Journal, 19:3, 410-448, DOI: [10.1080/17441056.2023.2200623](https://doi.org/10.1080/17441056.2023.2200623)

To link to this article: <https://doi.org/10.1080/17441056.2023.2200623>



© 2023 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



Published online: 23 Apr 2023.



Submit your article to this journal [↗](#)



Article views: 1923



View related articles [↗](#)



View Crossmark data [↗](#)

The future of anticompetitive self-preferencing: analysis of hypernudging by voice assistants under article 102 TFEU

Viktorija Morozovaite 

School of Law, Utrecht University, Utrecht, The Netherlands

ABSTRACT



With the nascent rise of the voice intelligence industry, consumer engagement is evolving. The expected shift from navigating digital environments by a “click” of a mouse or a “touch” of a screen to “voice commands” has set digital platforms for a race to become leaders in voice-based services. The Commission’s inquiry into the consumer IoT sector revealed that the development of the market for general-purpose voice assistants is spearheaded by a handful of big technology companies, highlighting the concerns over the contestability and growing concentration in these markets. This contribution posits that voice assistants are uniquely positioned to engage in dynamically personalized steering – hypernudging – of consumers toward market outcomes. It examines hypernudging by voice assistants through the lens of abuse of dominance prohibition enshrined in article 102 TFEU, showcasing that advanced user influencing, such as hypernudging, could become a vehicle for engaging in a more subtle anticompetitive self-preferencing.

ARTICLE HISTORY Received 5 January 2023; Accepted 17 March 2023

KEYWORDS Digital competition; self-preferencing; 102TFEU; hypernudging; voice assistants

1. Introduction

Voice assistants (hereinafter: “VAs”) are becoming a ubiquitous feature of modern life. Integrated into smart home devices, wearables, vehicles, computers, and smartphones, they offer support for mundane everyday tasks while continuously and silently analyzing their owners’ characteristics, habits and emotions. The consumer Internet of Things (IoT) sector has recently come under closer regulatory scrutiny in Europe.

CONTACT Viktorija Morozovaite  v.morozovaite@uu.nl  School of Law, Utrecht University, Newtonlaan 201, Utrecht, BH 3584, The Netherlands

© 2023 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group
This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

The European Commission's (hereinafter: "the Commission") inquiry into the sector highlighted several concerns related to the development and competitiveness of consumer IoT and the market for general purpose VAs, specifically: restrictions on multi-homing, concerns about default settings and pre-installations on VAs, data accumulation and lack of interoperability.¹ It also showcased that the development of the voice intelligence industry is spearheaded by big technology companies such as Amazon (Alexa), Google (Home Assistant), and Apple (Siri).²

This contribution posits that VAs by leading providers are uniquely positioned to engage in dynamically personalized steering – *hypernudging* – of users towards specific market and non-market outcomes and thus seamlessly influence and shape their preferences.³ Importantly, hypernudging should not be viewed as a single behaviourally informed intervention or design element deployed to steer the user. Instead, it represents multiple interventions and elements delivered within the context of complex systems that may not be indicative of harmful effects on their own.⁴ The scope of this article is limited to examining hypernudging by VAs in an economic activity context, namely, VAs providing information (and recommendations) about consumers' purchasing decisions and helping them execute pre-determined commercial tasks, such as renewing household items orders. Positioning recommendations by VAs within the hypernudging framework provides a new lens for studying their potential influence on consumers' personal spaces and aggregate effects on the market. When hypernudging is used to protect and/or expand firms' market power to the detriment of consumers, it is a cause for closer regulatory scrutiny.

¹Commission, 'Statement by Executive Vice-President Margrethe Vestager on the initial findings of the Consumer Internet of Things Sector Inquiry' (Brussels, 9 June 2021) <https://ec.europa.eu/commission/presscorner/detail/de/speech_21_2926> accessed 24 October 2022; The UK parliament has followed the suit. See: Digital, Culture, Media and Sport Committee, 'Connected Tech: Smart or Sinister?', <<https://committees.parliament.uk/work/6686/connected-tech-smart-or-sinister/>> accessed 24 October 2022.

²Report from the Commission to the Council and the European Parliament. Sector Inquiry into consumer Internet of Things' COM (2022) 19 final.

³Karen Yeung, "Hypernudge: Big Data as a mode of regulation by design" [2017] 20(1) Information, Communication & Society 118; Viktorija Morozovaite, 'Hypernudging in the changing European regulatory landscape for digital markets' [2022] Policy & Internet. See also on a related concept of "cumulative dark patterns": OECD, *Dark commercial patterns. Digital Economy Papers, No. 336* (OECD Publishing, 2022) <<https://doi.org/10.1787/44f5e846-en>> accessed 14 December 2022.

⁴Ioannis Lianos, 'Competition law in the digital era: a complex systems perspective' [2019]. <<https://ssrn.com/abstract=3492730>> accessed 14 December 2022; Lisanne Hummel, ASCOLA conference on Complexity and innovation: Market power of big tech companies in European competition law, 1 July 2022, in Porto, Portugal.

In the EU, competition law rules are applied to curb the negative manifestations of market power to safeguard inter alia consumer welfare and the system of undistorted competition.⁵ Article 102 TFEU provision deals with sanctioning dominant undertakings that abuse their market power in a specific relevant market. The Treaty does not contain an exhaustive list of abuses or an explicit definition of abuse. Instead, the concept of abuse develops through the case law of the European Courts.⁶

This contribution examines hypernudging by VAs vis-à-vis the self-preferencing form of abuse, which has recently been clarified in the Google Shopping judgement of the General Court (hereinafter: “the Court”).⁷ It deviates from existing competition law literature which examines personalized business practices through exploitative abuse lens by showcasing that hypernudging could also lead to exclusionary effects on the market.⁸ Exclusionary effects reference a dominant firm engaging in a conduct which artificially raises barriers to entry and expansion, limiting consumer choice and quality, and ultimately raising prices for end consumers.

Against the backdrop of the Digital Markets Act (hereinafter: “the DMA”), which contains prohibitions against self-preferencing behaviour by VAs designated as gatekeepers, this article provides a justification for not overlooking European competition law as a relevant instrument in sanctioning anticompetitive next-generation consumer influencing practices such as hypernudging. Ultimately, it is set to answer the main research question: under which circumstances can hypernudging by VAs be considered a vehicle for platforms to engage in self-preferencing behaviour, and could such self-preferencing fall under the scope of article 102 TFEU?

It is important to note from the onset, this article does not posit that hypernudging processes should be labelled as a specific form of abuse, or an inherently problematic form of self-preferencing. Instead, it is assessed as potential means for anticompetitive self-preferencing to take place. After all, European competition law does not offer a one-size-fits-all solution to various forms of hypernudging and may trigger considerations

⁵Guidance on the Commission’s Enforcement Priorities in Applying Article 82 of the EC Treaty to Abusive Exclusionary Conduct by Dominant Undertakings’ (2009) OJ C45/7.

⁶Liza Loudahl Gormsen, *A principled approach to abuse of dominance in European competition law* (Cambridge University Press 2010), 10.

⁷Case T-612/17 *Google and Alphabet v Commission (Google Shopping)* [2021] ECLI:EU: T:2021:763.

⁸For instance, on exploitative abuse angle see: Marco Botta and Klaus Wiedemann, ‘To discriminate or not to discriminate? Personalised pricing in online markets as exploitative abuse or dominance’ [2020] 50 *European Journal for Law and Economics* 381; Inge Graef, ‘Consumer sovereignty and competition law: From personalization to diversity’ [2021] 58(2) *Common Market Law Review*.

under different theories of harm or fall within the scope of legitimate business strategies.

The article proceeds as follows. The first section will set out the state-of-the-art of the market for VAs while contextualizing its development concerning the features of dynamic digital markets. After establishing that leading VAs' providers possess market power, it will describe European competition law developments in digital markets to highlight the momentum created for sector-specific regulation. The second section will demonstrate why VAs are so well-positioned to hypernudge consumers and, in turn, shape their preferences and behaviour and the circumstances in which such conduct may threaten the functioning of competitive markets. Finally, the third section will closely examine hypernudging by VAs vis-à-vis European competition law's theory of harm of anticompetitive self-preferencing. It will do so by deconstructing its elements and development through case law, concluding with asserting European competition law's relevance in addressing potential market threats of hypernudging.

2. The rise of market power in the voice intelligence industry

The voice intelligence industry is at its nascent stages.⁹ The development of the market for general-purpose VAs is led by a handful of big technology companies that shape consumers' experiences and interactions online.¹⁰ The recent Commission's inquiry into the consumer IoT sector highlighted several concerns over the concentration of market power and, in turn, potential threats to a competitive process. This section will provide a comprehensive overview of the market for general-purpose VAs. In light of the presence of substantial market power, it will examine European competition law and the DMA as appropriate legal regimes to address its potential negative manifestations, ultimately justifying this article's focus on article 102 TFEU perspective.

2.1. The market for general purpose voice assistants

VAs are "voice-activated pieces of software that can perform various tasks, acting both as a platform for voice applications and a user

⁹Joseph Turow, *The Voice Catchers: how Marketers Listen in to Exploit your Feelings, your Privacy and your Wallet* (Yale University Press 2021).

¹⁰Report from the Commission to the Council and the European Parliament. Sector Inquiry into consumer Internet of Things' COM (2022) 19 final, para 10.

interface.”¹¹ They represent a sub-set of virtual assistants that use voice as input.¹² This contribution focuses on general-purpose VAs that enable access to a broad range of functionalities in response to users’ voice commands, such as providing recommendations, controlling smart home devices, and executing daily tasks.¹³ While primarily associated with smart home speakers, VAs are integrated into an increasing number of smart applications and devices, including smart home appliances, wearables, connected vehicles, and smartphone applications.¹⁴

The market for general-purpose VAs has an oligopolistic competition structure, with a handful of big technology companies competing for the market.¹⁵ The Commission’s inquiry into the consumer IoT sector showed that in Europe, Amazon (Alexa), Google (Home Assistant), and Apple (Siri) are leading players in the development of the voice intelligence industry.¹⁶ Fierce competition among leading providers is well-illustrated by the smart speakers’ market developments. In 2018, Google and Amazon were engaging in price wars to plant their respective products at consumers’ houses.¹⁷ Companies recognize that the stakes for entrenching themselves as consumers’ go-to IoT brands extend beyond VAs’ market: winning platforms are likely to control a significant user interface (UI), with VAs becoming a likely gateway of consumer e-commerce and, ambitiously, world wide web experiences.¹⁸

The movement towards voice-based services could be understood in the context of UI shifts comparable to the web and smartphones.¹⁹ Each of these shifts has changed the way people interact with and access digital content: the web gave us a “click” enabled by the computer

¹¹Ibid, para 25.

¹²Slang Labs, ‘Voice Assistants: Transforming our Lives One Voice Interaction at a Time.’ <www.slanglabs.in/voice-assistants#:~:text=Voice%20Assistants%20are%20a%20subset%20of%20Virtual%20Assistants,These%20types%20of%20assistants%20are%20called%20Voice%20Assistants> accessed 24 October 2022.

¹³Commission Staff Working Document, Preliminary Report - Sector Inquiry into Consumer Internet of Things’ SWD (2021) 144 final, para 27.

¹⁴Ibid; Atieh Poushneh, ‘Humanizing voice assistant: The impact of voice assistant personality on consumers’ attitudes and behaviors’ [2021] 5 Journal of Retailing and Consumer Services 1, 1.

¹⁵Vicoriia Noskova, ‘Voice assistants as gatekeepers for consumption? - how information intermediaries shape competition’ [2022] European Competition Journal 1, 5.

¹⁶Report from the Commission to the Council and the European Parliament. Sector Inquiry into Consumer Internet of Things’ COM (2022) 19 final, para 10.

¹⁷Nick Routley, ‘Amazon vs. Google: The Battle for Smart Speaker Market Share’ (Visual Capitalist, 4 January 2018).

¹⁸‘Amazon is offering an Echo Dot for 99 cents with an Amazon Music Unlimited subscription’ (24 October 2019) <www.theverge.com/2019/10/24/20930398/amazon-echo-dot-99-cents-amazon-music-unlimited-subscription-deal-promotion> accessed 7 April 2022.

¹⁹Brett Kinsela, ‘Why tech giants are so desperate to provide your voice assistant’, <<https://hbr.org/2019/05/why-tech-giants-are-so-desperate-to-provide-your-voice-assistant>> accessed 7 April 2022; see also: Win Shih, ‘Voice revolution’ [2020] 56(4) Library Technology Reports 5.

mouse, smartphones introduced “touch” and “swipe,” while voice further simplifies users’ interactions by allowing them to “speak.”²⁰ The development of commerce is, too, mirrored in these UI shifts. Just as e-commerce and mobile commerce became ubiquitous with the adoption of web and mobile applications, respectively, voice commerce is expected to follow this trend, despite the slow uptake.²¹ According to the Commission’s findings, the projected use of VAs worldwide will double between 2020–2024, from 4.2 billion to 8.4 billion, with 11% of EU citizens surveyed in 2020 already using VAs.²² Voice and text-assisted AI are increasingly utilized in customer services, product information, marketing, and sales support.²³ The covid-19 pandemic further accelerated virtually-assisted, staff-free shopping experiences.²⁴ However, the adoption of VAs in consumers’ customer journeys is yet to mature, with consumers currently focusing on purchasing small and quick items that do not require visualization.²⁵

The success of the leading VAs is reinforced by the dynamics of the respective platform ecosystems they operate in – the utility of the service to the users is shaped and determined by those ecosystems.²⁶ Platform ecosystems consist of two key elements – a platform and its complementary applications.²⁷ Here, a software-based product for voice assistants serves as a foundation on which outside parties, such as smart home device producers or software developers, can build complementary goods and services around.²⁸ For example, Amazon’s Alexa

²⁰Ibid.

²¹Sean Colvin and Will Kingston, ‘Why conversation is the future of customer experience’ (PwC Digital Pulse Report, July 2017); Janarthanan Balakrishnan and Yogesh K. Dwivedi, ‘Conversational commerce: Entering the next stage of AI-powered digital assistants’ [2021] *Annals of Operations Research* 1.

²²Commission, ‘Questions & Answers. Antitrust: Commission publishes preliminary report on consumer Internet of Things sector inquiry’ <https://ec.europa.eu/commission/presscorner/detail/es/qanda_21_2908> accessed 14 December 2022.

²³Huan Chen, Sylvia Chan-Olmsted, Julia Kim, and Irene Mayor Sanabria, ‘Consumers’ perception on artificial intelligence applications in marketing communication’ [2021] 25(1) *Qualitative Market Research: An International Journal* 125, 127.

²⁴Deloitte, ‘2022 Retail Industry Outlook. The pandemic creates opportunities for the great retail reset’ [2022] 11. <www2.deloitte.com/content/dam/Deloitte/us/Documents/consumer-business/2022-retail-industry-outlook.pdf> accessed 24 October 2022; KPMG, ‘Customer Experience in the New Reality’ (October 2020) 33. <<https://assets.kpmg/content/dam/kpmg/br/pdf/2021/03/Customer-experience-new-reality.pdf>> accessed 24 October 2022.

²⁵Karien Oude Wolbers and Nadine Walter, ‘Silence Is Silver, but Speech Is Golden: Intelligent Voice Assistants (IVAs) and Their Impact on a Brand’s Customer Decision Journey with a Special Focus on Trust and Convenience—A Qualitative Consumer Analysis in the Netherlands’ [2021] 18(1) *IUP Journal of Brand Management* 7, 9.

²⁶Amrit Tiwana, *Platform Ecosystems: Aligning Architecture, Governance and Strategy* (Elsevier 2014), 5.

²⁷Ibid.

²⁸Ibid, 7. See also: Carliss Y. Baldwin and Jason C. Woodard, ‘The architecture of platforms: a unified view’ [2009] 32 *Platforms, markets, and innovation* 19; Annabelle Gawer, ‘Bridging differing perspectives on technological platforms: toward an integrative framework’ [2014] *Research Policy* 43. In the law and

is part of Amazon's ecosystem of digital products and services. As a result, the user may directly access, among others, shopping (Marketplace, Wholefoods), entertainment (Prime Video, Amazon Music, Twitch), news (Washington Post), and IoT devices (Echo, Ring) services.²⁹ By the same token, it is compatible with an increasing number of third-party hardware with a "works with Amazon Alexa" label, including brands such as Sonos, Marshall, Bose, and Libraton Zipp 2.³⁰ In addition, "Alexa Skills Kit" is a software development framework that allows developers to create skills – voice activated applications – for Amazon's VA.³¹

The way these platform ecosystems connect and integrate with third-party consumer IoT products and services depend on their design. For instance, when setting up their smart home environments that can be controlled with the help of VAs, consumers have to choose how they will bring the different devices together; a logical starting point is choosing a VA. A distinction can be made between voice assistants operating as part of a more open ecosystem, such as the described Amazon's Alexa or Google Assistant, and more closed ecosystems, such as Apple's HomeKit controlled by Siri.³² Whichever ecosystem they choose, consumers are likely to be locked in to build their environments based on compatibility with that ecosystem. Even in cases of multi-homing, specific areas of a consumer's life, such as a smart home or commuting, can be compartmentalized in a way that requires building those environments considering the compatibility of devices.

The Commission's inquiry into the consumer IoT sector highlighted several concerns stemming from the market power dynamics within the general-purpose VAs market. One such concern relates to the lack of standardization in the industry, which exacerbates the dependencies upon the leading VAs providers and further reinforces consumer

economics literature, ecosystems can be viewed as "multi-actor groups of collaborating complements (i.e., "theory of the firm" alternatives to vertical integration or supply-chain arrangements) and multiproduct bundles offered to customers (i.e., horizontally or diagonally connected goods and services that are "packaged" together), focused on customer ease—and lock-in." See: Michael G. Jacobides and Ioannis Lianos, 'Ecosystems and competition law in theory and practice' [2021] 30 (5) *Industrial and Corporate Change* 1199.

²⁹Jon Nordmark, 'Amazon's Ecosystem Map' (*Medium*, 17 June 2020) <<https://medium.com/@jonnordmark/amazons-ecosystem-map-d25abcac9613>> accessed 24 October 2022.

³⁰David Nield, 'The best smart home systems 2022: Top ecosystems explained' (*the ambient*, 20 August 2022) < www.the-ambient.com/guides/smart-home-ecosystems-152> accessed 24 October 2022.

³¹Alexa, 'What is the Alexa Skills Kit', <<https://developer.amazon.com/en-US/docs/alexa/ask-overviews/what-is-the-alexa-skills-kit.html>> accessed 14 December 2022.

³²Ibid.

lock-in effects while stifling potential competition.³³ Currently, third-party consumer IoT services providers seem to cater to their service offerings and future business strategies, focusing on leading providers' standards.³⁴ Furthermore, the identified competition features in the general-purpose VAs market corroborate that these leading companies are expanding and shielding their market power by strategically using their application interfaces, algorithms, and contractual restrictions to ensure interconnectivity and interoperability for final consumers.³⁵ The market is characterized by high barriers to entry and expansion, with most data being collected and held by leading companies, pointing to the need to oversee the developments driven by firms with substantial market power.³⁶

2.2. Addressing market power in digital markets: from article 102 TFEU to sector-specific regulation

The observed market dynamics in the consumer IoT sector led European policymakers to bring forward regulatory initiatives aimed to address some areas of concern, with focus being placed on removing barriers to entry and expansion.³⁷ This article posits that in addition to the emergent regulation, competition law provides a logical legal avenue in curbing the negative manifestations of market power in the context of general-purpose VAs. Hypernudging by VAs could be assessed as a way to engage in exclusionary self-preferencing behaviour sanctioned under Article 102 TFEU. By following the relevant developments in the competition law enforcement in digital sector, this section sets out the background necessary for further competition law analysis.

³³Commission Staff Working Document, Preliminary Report - Sector Inquiry into Consumer Internet of Things' SWD (2021) 144 final, paras 231-233. See also a recent lawsuit against Google alleging that the company is stifling competition in voice recognition market: CPI, 'New Suit Accuses Google of Stifling Voice Recognition Competitors' (6 April 2022) <www.competitionpolicyinternational.com/new-suit-accuses-google-of-stifling-voice-recognition-competitors/> accessed 24 October 2022.

³⁴Commission Staff Working Document, Preliminary Report - Sector Inquiry into Consumer Internet of Things' SWD (2021) 144 final, 53.

³⁵Ibid; Michael G. Jacobides and Ioannis Lianos, 'Ecosystems and competition law in theory and practice' [2021] 30(5) *Industrial and Corporate Change* 1199, 1203.

³⁶Commission Staff Working Document, Preliminary Report - Sector Inquiry into Consumer Internet of Things' SWD (2021) 144 final, chapter 4.

³⁷For instance, Regulation (EU) 2022/1925 of the European Parliament and of the Council of 14 September 2022 on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828 (Digital Markets Act). See also the proposal for the European Data Act aimed to harmonize rules for data access and sharing, specifically covering the IoT sector: Commission, 'Proposal for a Regulation of the European Parliament and of the Council on Harmonized Rules on Fair Access to and Use of Data (Data Act)' COM (2022) 68 final.

2.2.1. Abuse of dominance

Abuse of dominance prohibition is drafted in a broad and abstract manner, leaving its interpretation and defining of specific concepts up to enforcement and judicial bodies. When building an abuse of dominance case, the first step necessitates establishing that an undertaking in question does hold a dominant position. To do so, it is necessary to define the relevant market, to delineate “the boundaries of competition between firms.”³⁸ Defining the relevant market entails considering its product and geographic dimensions, which are determined by assessing demand substitution, supply substitution, and potential competition using economic tests. In practice, both the Commission and the Courts tend to define the relevant market in narrow terms. Once the relevant market is established, the competitive constraints and undertaking’s position in that market are examined. The assessment necessitates considering the undertaking’s market shares and other economic factors, such as performance indicators, price levels, profits, and barriers to entry and expansion.³⁹

Determining that an undertaking holds a dominant position is insufficient to trigger Article 102 TFEU intervention. Firms that gain strong market positions due to rigorous competition and innovation should not be penalized for their success. It is only when undertakings abuse their dominant position by engaging in behaviour that deviates from competition on merits that they ought to be sanctioned.⁴⁰ The Treaty does not contain an exhaustive list of abuses.⁴¹ However, the literature and case law identify three broad categories: exclusionary abuses that exclude competitors from the relevant market, exploitative abuses that are harmful to consumers directly, and discriminatory abuses that apply dissimilar conditions to equivalent transactions between various

³⁸Commission Notice on the definition of relevant market for purposes of Community competition law (97/C 372/03), para 2.

³⁹Case 85/76 *Hoffmann-La Roche v Commission* [1979] ECLI:EU:C:1979:36, paras 39-41: “The existence of a dominant position may derive from several factors which taken separately are not necessarily determinative but among these factors a highly important one is the existence of very high market shares”; Case 62/86 *AKZO v Commission* [1991] ECLI:EU:C:1991:286, para 60: over 50% market share leads to presumption of dominance; Case T-30/89 *Hilti v Commission* [1991] ECLI:EU:T:1991:70, para 92: over 70% market share provides a clear indication of dominance. Commission, ‘Guidance on the Commission’s enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings’ 2009/C 45/02, para 16-18.

⁴⁰Case 322/81 *Nederlandsche Banden Industrie Michelin (Michelin I) v Commission* [1983] ECR 3461, para 57; Case T-83/91 *Tetra Pak v Commission (Tetra Pak II)* [1993] ECR II-755, para 114; Case T-228/97 *Irish Sugar v Commission* [1999] ECR II-2969, para 112.

⁴¹Liza Loudahl Gormsen, *A principled approach to abuse of dominance in European competition law* (Cambridge University Press 2010), 10.

customers. The subject of this article is self-preferencing, which the Court construed as an independent type of exclusionary abuse.

Finding article 102 TFEU infringement necessitates establishing a logically consistent theory of harm, which must articulate how the dominant undertaking's behaviour harms competition and consumers. It is done relative to a counterfactual scenario, not deviating from the various parties' available empirical evidence or incentives.⁴² The standard for establishing anticompetitive effects that leads to an infringement of Article 102 TFEU is, nevertheless, disputed. A distinction could be made between "capability and likelihood of anticompetitive effects taking place."⁴³ The former relates to a situation where a credible mechanism through which anticompetitive effects would manifest is identified.⁴⁴ The latter refers to conduct more likely than not to lead to an anticompetitive outcome – a higher threshold for enforcement authorities to meet.⁴⁵ There is generally no requirement to show that conduct has actual effects on competition.⁴⁶ Instead, there must be a probability of anticompetitive effects taking place, albeit those effects cannot be purely hypothetical.⁴⁷ The Court also stressed that the Commission is required to analyze all the relevant circumstances in the case.⁴⁸ Absent objective justification for dominant undertaking's behaviour, establishing a credible theory of harm would lead to article 102 TFEU infringement.

2.2.2. Competition in the digital economy

It is a truism that the rise of the digital economy introduced challenges in applying competition law tools in abuse of dominance cases, which have been amply criticized for not being able to fully capture the power

⁴²Hans Zenger and Mike Walker, 'Theories of harm in European competition law: A progress report' in Jacques Bourgeois and Denis Waelbroeck (eds.) *Ten Years of Effects-based Approach in EU Competition Law* (Bruylant 2012).

⁴³Pablo Ibáñez Colomo and Alfonso Lamadrid, 'On the Notion of Restriction of Competition: What We Know and What We Don't Know We Know' [2016] 34. Forthcoming in Damien Gerard, Massimo Merola and Bernd Meyring (eds), *The Notion of Restriction of Competition: Revisiting the Foundations of Antitrust Enforcement in Europe* (Bruylant 2017), Available at SSRN: <<https://ssrn.com/abstract=2849831>> accessed 24 October 2022.

⁴⁴Pablo Ibanez Colomo, 'Anticompetitive effects in EU competition law' [2021] 17(2) *Journal of Competition Law and Economics* 309.

⁴⁵Ibid; Renato Nazzini, 'Standard of Foreclosure under Article 102 TFEU and the Digital Economy Debate' [2020], King's College London Law School Research Paper Forthcoming, <SSRN: <https://ssrn.com/abstract=3650837> or <http://dx.doi.org/10.2139/ssrn.3650837>> accessed 24 October 2022.

⁴⁶T-203/01 *Michelin v Commission* (Michelin II) [2003] ECLI:EU:T:2003:250 para 239.

⁴⁷C-209/10 *Post Danmark* [2012] ECLI:EU:C:2012:172 para 65. In the past, the European Commission and the Courts were criticized for adopting a form-based approach in their assessment, which refers to a prima facie prohibition of a practice regardless of its effects.

⁴⁸C-52/09 *Konkurrensverket v TeliaSonera Sverige AB* [2011] ECLI:EU:C:2011:83, para 28; T-286/09 *RENV Intel Corporation Inc. V European Commission* [2022] ECLI:EU:T:2022:19.

dynamics that play out in digital markets.⁴⁹ The fluidity of the boundaries of market power and, in turn, dominance, are highlighted in the context of big technology companies that form intricate multi-product and multi-actor ecosystems. These firms possess substantive market power in their respective core platform service markets, characterized by high market shares, network effects, data gathering and analysis capabilities, economies of scale and scope.⁵⁰ This market power is further reinforced by the interrelationships between market actors, with big technology companies creating organizational dependencies among their network of partners.⁵¹ Although the characteristics of big technology companies are not fundamentally new, their power seems to have greater *pervasiveness, scope, precision, and invasiveness* in modern societies and individual lives, with effects spilling beyond the market into the social, political, and personal domains.⁵²

Over the past decade, defining dominance in digital markets has been a subject of intense debate.⁵³ Questions have arisen concerning the multi-

⁴⁹Among others, see: Jacques Crémer, Yves-Alexandre de Montjoye and Heike Schweitzer, *Competition policy for the digital era. Final Report* (Publications Office, 2019), <<https://data.europa.eu/doi/10.2763/407537>> accessed 24 October 2022; Australian Competition and Consumer Commission, Digital Platforms Inquiry: A Final Report (June 2019) < www.accc.gov.au/system/files/Digital%20platforms%20inquiry%20-%20final%20report.pdf> accessed 24 October 2019; Stigler Committee on Digital Platforms: Final Report (2019) <www.chicagobooth.edu/-/media/research/stigler/pdfs/digital-platforms---committee-report---stigler-center.pdf> accessed 24 October 2022. In this context, it is also important to mention the ensuing debate about the suitability of competition law tools and even the very nature of antitrust. This seems to be a tipping point, an opportunity for this legal field to be re-invented and adjusted to fit the new realities of the digital markets.

⁵⁰For example, in the market for general search services Google holds a super-dominant position, see on the concept: Alessia Sophia D'Amico & Baskaran Balasingham, 'Super-dominant and super-problematic? The degree of dominance in the Google Shopping judgement' [2022] *European Competition Journal* 1.

⁵¹Anne Helmond, David B. Nieborg and Fernando van der Vlist, 'Facebook's evolution: development of a platform as infrastructure' [2019] 3(2) *Internet Histories* 123; Jean-Christophe Plantin et al, 'Infrastructure studies meet platform studies in the age of Google and Facebook' [2018] 20(1) *New media & society* 293.

⁵²Anna Gerbrandy and Pauline Phoa, 'The power of big tech corporations as Modern Bigness' in Rutger Claassen (ed.) *Wealth and Power* (Routledge 2022); José Van Dijck, Thomas Poell, and Martijn De Waal, *The platform society: Public values in a connective world* (Oxford University Press, 2018); Orla Lynskey, 'Regulating Platform Power' [2017] LSE Legal Studies Working Paper No. 1/2017; Lina M. Khan, 'Sources of tech platform power' [2017] 2 *Geo. L. Tech. Rev.* 325; Emily B. Laidlaw, 'A framework for identifying Internet information gatekeepers' [2010] 24(3) *International Review of Law, Computers & Technology* 263.

⁵³Some even questioned the very need for defining relevant market in the first place. See: Louis Kaplow, 'Why (ever) define markets?' [2010] *Harvard Law Review* 437; Jacques Crémer, Yves-Alexandre de Montjoye and Heike Schweitzer, *Competition policy for the digital era. Final Report* (Publications Office, 2019), <<https://data.europa.eu/doi/10.2763/407537>> accessed 24 October 2022; Investigation of Competition in Digital Markets, Majority Staff Report and Recommendations, Subcommittee on Antitrust, Commercial and Administrative Law (2020), <https://judiciary.house.gov/uploadedfiles/competition_in_digital_markets.pdf?utm_campaign=4493-519> accessed 24 October 2022; Magali Eben and Viktoria HSE Robertson, 'The Relevant Market Concept in Competition Law and Its Application to Digital Markets: A Comparative Analysis of the EU, US, and Brazil' [2021] *Graz Law Working Paper No 01-2021*; Michael G. Jacobides and Ioannis Lianos, 'Ecosystems and competition law in theory and practice' [2021] 30(5) *Industrial and Corporate Change* 1199, 1204–06.

sided nature of digital platforms and their structural roles within interconnected platform ecosystems, characterized by vertical integration, cross-sectorization, and private modes of governance.⁵⁴ To adequately address emerging challenges, more understanding is required regarding how the different business areas of these complex systems interact.⁵⁵

In digital abuse of dominance cases, the Commission and the Courts have continuously resorted to defining markets narrowly.⁵⁶ Illustrative is *Google Android* decision, which dealt with multi-product tying abuse and was largely confirmed by the Court.⁵⁷ In *Google Android*, the Commission concluded that non-licensable operating systems (hereinafter: “OS”) do not belong to the same market as licensable ones. Consequently, Google’s dominant position in licensable OSs was considered not to be meaningfully affected by the competitive constraint exerted by Apple or BlackBerry.⁵⁸ In reaching the decision, the Commission relied on non-conventional market indicators including small but significant non-transitory decrease in quality (hereinafter: “SSNDQ”) test to examine the reaction of users and app developers to a hypothetical deterioration in quality of Android, as well as assessed user loyalty and switching costs, highlighting the limitations of traditional market definition toolkit in the digital sphere.⁵⁹ By the same token, Android

⁵⁴José Van Dijk, ‘Seeing the forest for the trees: visualizing platformisation and its governance’ [2021] 23 (9) *New media & society* 2801; Daniel Mandrescu, ‘Applying (EU) competition law to online platforms: reflections on definition of the relevant market’ [2018] 41(3) *World Competition: Law and Economics Review* 1.

⁵⁵Lisanne Hummel, ASCOLA conference on Complexity and innovation: Market power of big tech companies in European competition law, 1 July 2022, in Porto, Portugal; Ioannis Lianos, ‘Competition law in the digital era: a complex systems perspective’ [2019] <<https://ssrn.com/abstract=3492730>> accessed 14 December 2022.

⁵⁶Christine Wilson and Keith Klovers, ‘Same rule, different result: how the narrowing of product markets altered substantive antitrust rules’ [2021] <<https://ssrn.com/abstract=3797089>> accessed 24 October 2022.

⁵⁷*Google Android* (Case AT.40099) Decision C(2018) 4761 final; the General Court has upheld most of the Commission’s decision with the exception of the Commission’s handling of aspects of administrative procedure, which resulted in reduction of fine. See: Case T-604/18 *Google and Alphabet v Commission (Google Android)* ECLI:EU:T:2022:541.

⁵⁸Case T-604/18 *Google and Alphabet v Commission (Google Android)* ECLI:EU:T:2022:541, para 139.

⁵⁹Carter Chim, ‘A search beyond challenge? Takeaways from the European General Court’s ruling in the *Google Android* antitrust appeal’ (*Denis Chang’s Chambers*, 13 October 2022) <<https://dcc.law.competition-law-antitrust-google-android-european-general-court-appeal/>> accessed 14 December 2022; Pablo Ibanez Colomo, ‘Comments on Android (I): some questions for economists on market definition’ (*Chillin’Competition*, 3 October 2019) <<https://chillingcompetition.com/2019/10/03/comments-on-android-i-some-questions-for-economists-on-market-definition/>> accessed 14 December 2022; Daniel Mandrescu, ‘Lessons and questions from Google Android – Part 1 – the market definition’ (*Lexxion*, 29 October 2019) <www.lexxion.eu/en/coreblogpost/lessons-and-questions-from-google-android-part-1-the-market-definition/> accessed 14 December 2022; Dimitrios Katsifis, ‘Some additional thoughts on the General Court’s Judgement in Google Android’ (*The Platform Law Blog*, 5 December 2022) <<https://theplatformlaw.blog/2022/12/05/some-additional-thoughts-on-the-general-courts-judgment-in-google-android/>> accessed 14 December 2022.

app stores were considered to form a separate relevant market from Apple's App Store, showcasing that OSs and app stores were assessed as part of the same system.⁶⁰ Further demonstrating the salience of the topic, in March 2020, the Commission launched the evaluation of the Market Definition Notice and gathered evidence from stakeholders, with findings indicating the need for updating the Notice to reflect the realities of digital markets.⁶¹

Similar hurdles are expected to emerge in defining dominance in the general-purpose VAs' market which, as said before, is currently dominated by three players: Amazon Alexa, Google Home Assistant and Apple Siri. It is noteworthy that establishing each company's respective market share is challenging given that VAs are integrated and pre-installed in a number of free services and devices, which lack reliable statistics.⁶² Since this contribution is focused on the analysis of anticompetitive self-preferencing, it will operate under an assumption that dominance would be established either because the market tipped to favour a single firm or general-purpose VAs evolved in a way that allows for sufficient differentiation to constitute separate relevant markets.⁶³ The "system perspective" identified in *Google Android* decision may be informative in this regard since VAs' development is generally closely dependent on the platform ecosystem it belongs to.⁶⁴

Before examining what hypernudging by VAs entails and whether it could fall within the scope of article 102 TFEU, specifically regarding self-preferencing, it is necessary to acknowledge that digitalization of markets has also led to a surge of abuse of dominance investigations that tested the boundaries of existing theories of harm. Big technology

⁶⁰Case T-604/18 *Google and Alphabet v Commission (Google Android)* ECLI:EU:T:2022:541, para 250.

⁶¹Commission, 'Executive Summary of the Evaluation of the Commission Notice on the Definition of Relevant Market for the Purposes of Community Competition Law of 9 December 1997' SWD (2021) 200 final.

⁶²Vicoriia Noskova, 'Voice assistants as gatekeepers for consumption? - how information intermediaries shape competition' [2022] *European Competition Journal* 1, 6.

⁶³It is noteworthy that even though market shares in the relevant market provide the preliminary indication of dominance, with a market share below 40% indicating little likelihood of dominance, they will be interpreted in the light of the specific relevant market conditions. See: Commission, 'Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings' 2009/C 45/02, para 14. In addition, a possible route may be provided by differentiating the market based on VAs' function, ranging from smart home devices to transportation and e-commerce.

⁶⁴For example, in June 2022 Google announced shutting down its Assistant's Conversational Actions in favor of App Actions for Android. "The new approach is to just have developers add voice control capabilities to their existing Android apps instead of creating an entirely independent experience from the ground up that was device agnostic", see: Abner Li, 'Google removing third-party Assistant voice apps and Nest Hub games amid Android focus' (*9to5Google*, 13 June 2022) <<https://9to5google.com/2022/06/13/google-assistant-voice-apps/>> accessed 14 December 2022.

companies have been at the centre of enforcers' radar. While building abuse of dominance cases proved to be a lengthy endeavour, the growing knowledge and enforcement experiences showed that the digital market dynamics and structure is prone to systemic concerns, instead of one-off competition law infringements. Therefore, the momentum has been created for sector-specific regulation, with the DMA adopted in July 2022.⁶⁵

2.2.3. *The digital markets act*

The DMA is a regulation that aims to foster fairness and contestability in the digital sector.⁶⁶ It identifies black-listed and grey-listed practices for companies designated as gatekeepers – large online platforms with entrenched and durable positions that significantly impact the internal market and provide core platform services on which other business users and end users depend.⁶⁷ The final DMA text includes VAs within the definition of “core platform services.”⁶⁸ Consequently, problematic self-preferencing practices that manifest through VAs technology may be, to a large extent, addressed by this regulation. Article 6(5) outlines an obligation to:

“not treat more favourably in ranking and related indexing and crawling, services and products offered by the gatekeeper itself than similar services or products of a third party. The gatekeeper shall apply transparent, fair and non-discriminatory conditions to such ranking.”

The outlined obligation in effect amounts to a *per se* prohibition on self-preferencing.⁶⁹ While this contribution is not aimed to address the lively debate on the interaction between competition law and the DMA,⁷⁰ it is necessary to justify the choice for assessing dynamically personalized

⁶⁵Regulation (EU) 2022/1925 of the European Parliament and of the Council of 14 September 2022 on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828 (Digital Markets Act). Make a reference to Vestager's speech on the need to address systemic concerns and the DMA.

⁶⁶Ibid, Article 1(1).

⁶⁷Ibid, Article 3.

⁶⁸The text includes “virtual assistants”, a broader term that also covers VAs. Ibid, Article 2(2)(h) and 2(12).

⁶⁹Note, while the draft text of the DMA included self-preferencing in the “obligations for gatekeepers susceptible of being further specified under Article 8” through the dialogue with the European Commission, based on unique circumstances of the gatekeeper.

⁷⁰Among others, see: Rupprecht Podszun and Philipp Bongartz, ‘The digital markets act: moving from competition law to regulation for large gatekeepers’ [2021] 10(2) Journal of European Consumer and Market Law 60; Valeria Falce, ‘Competition policy and Digital Markets Act. Converging agendas’ [2021] European Journal of Privacy Law & Technologies; Alexandre de Streel and Pierre Larouche, ‘The European Digital Markets Act: A Revolution Grounded on Traditions’ [2021] Journal of European Competition Law & Practice; Assimakis Komninos, The Digital Markets Act: How Does it Compare with Competition Law? [2022] <<https://ssrn.com/abstract=4136146>> accessed 24 October 2022.

consumer steering – hypernudging – by VAs as a potential article 102 TFEU infringement.

In light of the emerging voice intelligence industry, including VAs under the scope of the DMA is a forward-looking choice. However, the application and impact of promising provisions are expected to be heavily litigated.⁷¹ As will be discussed in section 4, hypernudging by VAs is an elevation of existing forms of self-preferencing behaviour already familiar to regulators and enforcement authorities. In the context of intricately connected multi-product and multi-actor ecosystems, one could envision the next-generation of self-preferencing to manifest in more covert ways. Hypernudging has the potential to elevate the practice of self-preferencing, where instead of steering consumers' behaviour by ranking recommendations for a specific product uniformly and overtly across the different consumer groups, it moves towards presenting multiple offers, at different times, perhaps through various channels within the respective platform ecosystem the VA belongs to.⁷² In such a scenario, individual recommendations and actions may not be indicative of harmful behaviour.⁷³

Even though the drafting of article 6(5) is wide enough to capture such next-generation self-preferencing behaviour, in practice, the challenge would emerge in pinpointing the specific features that lead to it. With the lack of observability of complex proprietary systems that are expected to facilitate such hypernudging, competition law may prove to be a logical instrument to deal with anticompetitive effects *ex-post*. Thus, even though the DMA may capture a great deal of harmful self-preferencing practices in digital markets, with the evolution of digital technologies and new ways developed to reach anticompetitive outcomes, the boundaries of article 102 TFEU may be tested further. As discussed in section 4.2, the Court's approach indicates a degree of malleability to it.

3. Hypernudging by voice assistants as a threat to competitive markets

This section will examine why VAs are uniquely positioned to engage in dynamically personalized user steering – *hypernudging* – processes,

⁷¹Center for Competition Policy, 'The General Court's Google Shopping ruling', comment by Damien Geradin, < www.youtube.com/watch?v=QmXbfGSOlqo> accessed 7 April 2022.

⁷²Reference to intra-platform hypernudging, see: Viktorija Morozovaite, 'Hypernudging in the changing European regulatory landscape for digital markets' [2022] Policy and Internet.

⁷³Stuart Mills, 'Finding nudge in the hypernudge' [2022] Technology in Society.

which can be used to shape consumers' preferences and in turn market behaviour. They are designed to address two essential needs that consumers have when shopping online – convenience and trust.⁷⁴ When hypernudging by VAs allows for seamless consumer steering towards outcomes that do not fully align with their interests, the concerns over distortion of competition occur.⁷⁵

3.1. *The mechanics of hypernudging by voice assistants*

The premise of this article is that VAs of the leading providers are uniquely positioned to engage in a highly dynamically personalized user steering – *hypernudging* – towards specific market outcomes, such as purchasing decisions, and to seamlessly shape their preferences. Theoretically, hypernudging is built on the insights of linkages between behavioural economics and information systems (IS) literature, which demonstrates that people's behaviour is influenced by their environmental and cognitive constraints.⁷⁶ Thus, their behaviour may be shaped by external actors – the choice architects – that can re-assemble their choice environments based on their specific context and circumstances, such as personal characteristics.⁷⁷ Hypernudging processes could be visualized as a staircase: “it is no longer about a single step placed by the choice architect to steer the user, but multiple steps that might come in different shapes, at different times, all with the goal to gently push her towards a specific outcome.”⁷⁸ In other words, it is a system of dynamically personalized nudges, not a single design feature or behavioural intervention.⁷⁹

As discussed earlier, general-purpose VAs enable users to access a broad range of functions. At their core, however, many relate to

⁷⁴Karien Oude Wolbers and Nadine Walter, ‘Silence Is Silver, but Speech Is Golden: Intelligent Voice Assistants (IVAs) and Their Impact on a Brand’s Customer Decision Journey with a Special Focus on Trust and Convenience—A Qualitative Consumer Analysis in the Netherlands’ [2021] 18(1) IUP Journal of Brand Management 7, 11.

⁷⁵Ryan Calo, ‘Digital Market Manipulation’ [2014] 82 George Washington Law Review. 995.

⁷⁶Herbert A. Simon, ‘A behavioral model of rational choice’ [1955] 69(1) The quarterly journal of economics 99; Viktorija Morozovaite, ‘Two sides of the digital advertising coin: putting hypernudging into perspective’ [2021] 5(2) Markets and Competition Law Review 104.

⁷⁷Ryan Calo, ‘Hypernudge: Big Data as a mode of regulation by design’ [2017] 20(1) Information, Communication & Society 118; Richard H. Thaler and Cass R. Sunstein, *Nudge: Improving decisions about health, wealth, and happiness* (Yale University Press 2008).

⁷⁸Viktorija Morozovaite, ‘Two sides of the digital advertising coin: putting hypernudging into perspective’ [2021] 5(2) Markets and Competition Law Review 104, 117.

⁷⁹Viktorija Morozovaite, ‘Hypernudging in the changing European regulatory landscape for digital markets’ [2022] Policy and Internet Journal 1; Stuart Mills, ‘Finding nudge in the hypernudge’ [2022] Technology in Society 1.

providing information and helping execute pre-determined tasks.⁸⁰ User profiling is an integral part of the functioning of VAs to achieve successful service personalization. The goal is to move away from simply responding to a query or executing a task but instead determining and predicting user's needs to give them a dynamically personalized experience, based on their preferences, needs, behaviours and interests.⁸¹ A user profile provides information representing user's specific characteristics and context.⁸² The human voice is loaded with information about the user, opening opportunities for voice profiling. Rich research shows that voice holds the cues to detecting not only physical parameters of a person, such as their gender, weight, or height, but also physiological (age, heart rate), demographic (nativity, education, skin colour), medical (general state of the health, autoimmune/genetic/neurological disorders), behavioural (perception of dominance, dynamism, leadership, sexual orientation), and environmental parameters as well as personality and emotions.⁸³ Furthermore, the probability of two people, even identical twins, sharing precisely the same voice is highly improbable.⁸⁴

It is unsurprising that the terms of service of the (leading) VA providers allow companies to process and retain user interactions such as voice inputs to, as they state, "provide, personalize and improve [their] services."⁸⁵ When it comes to user profiling, however, the critical point relates to the *processing* part. Regardless of the quantity of information, the accuracy of the user profile ultimately depends "on the user profiling process in which the information gathered, organized and interpreted to create the summarization and the description of the user."⁸⁶ Big technology companies that dominate the VAs' market are well-positioned to profile users accurately. Due to the workings of their respective platform ecosystems, they have not only amassed vast amounts of user data across their many business domains but also are the leaders in artificial intelligence (AI) and machine learning (ML)

⁸⁰Commission Staff Working Document, Preliminary Report - Sector Inquiry into Consumer Internet of Things' SWD (2021) 144 final, para 27.

⁸¹Ayse Cufoglu, 'User profiling-a short review' [2014] 108(3) International Journal of Computer Applications 1, 1 and 7.

⁸²Ibid.

⁸³Rita Singh, *Profiling humans from their voice* (Springer 2019) 85–120.

⁸⁴Ibid, 63-65.

⁸⁵Joseph Turow, *The Voice Catchers: how Marketers Listen in to Exploit your Feelings, your Privacy and your Wallet* (Yale University Press 2021), 73; Alexa Terms of Use, para 1.3: < www.amazon.com/gp/help/customer/display.html?nodeId=201809740 > accessed 25 March 2022.

⁸⁶Ayse Cufoglu, 'User profiling-a short review' [2014] 108(3) International Journal of Computer Applications 1, 1.

algorithms.⁸⁷ Furthermore, users have an incentive to share their information across the services by the same provider on the cloud, as this creates synergies among those services and allows for better functionality for the user. For instance, if a busy parent asks Amazon Alexa to order household items, they may want their VA to have access to their previous purchasing history. They may also be interested in their child's activity and time spent on Twitch (owned by Amazon) or want entertainment while cooking with Amazon's Prime Video in the background. While many studies have flagged the privacy concerns related to using VAs,⁸⁸ it also shows that, for many, these do not outweigh the benefits of having one.⁸⁹ Convenience remains one of the most prioritized consumer values, driving e-commerce and, more broadly, the digital economy.⁹⁰

User experience is a critical factor, revealing the potency of hypernudging opportunities by VAs. In addition to convenience, trust also plays an essential role in consumers' purchasing decisions online.⁹¹ VAs are purposely designed to *feel* normal – they can express disappointment and excitement or adjust their voice and tone according to the customer's wishes.⁹² Psychological studies confirm that subconsciously people react to devices with human-like qualities as if they were human; they are also often referred to in human pronouns.⁹³ Thus, the customer

⁸⁷It is noteworthy, that at the time of writing the technology is still developing; when reflecting on their interactions with voice assistants, users expressed that the communication is not up to par in reflecting the complexities of human language and interpretation error for more nuanced queries remains common. See: Huan Chen, Slyvia Chan-Olmsted, Julia Kim, and Irene Mayor Sanabria, 'Consumers' perception on artificial intelligence applications in marketing communication' [2021] 25(1) *Qualitative Market Research: An International Journal* 125, 134.

⁸⁸Vimalakumar, M., Sujeeet Kumar Sharma, Jang Bahadur Singh, and Yogesh K. Dwivedi, "Okay google, what about my privacy?: User's privacy perceptions and acceptance of voice based digital assistants' [2021] 120 *Computers in Human Behavior* 106763; Ronald Leenes and Silvia De Conca, 'Artificial intelligence and privacy – AI enters the house through the Cloud' in *Research handbook on the law of artificial intelligence* (Edward Elgar Publishing 2018); Karolina Ewers, Daniel Baier, and Nadine Höhn, 'Siri, Do I Like You? Digital voice assistants and their acceptance by consumers' [2020] 4(1) *SMR-Journal of Service Management Research* 52, 55.

⁸⁹Huan Chen, Slyvia Chan-Olmsted, Julia Kim, and Irene Mayor Sanabria, 'Consumers' perception on artificial intelligence applications in marketing communication' [2021] 25(1) *Qualitative Market Research: An International Journal* 125, 135.

⁹⁰Convenience is conceptualized as "consumers' time and effort perceptions related to buying or using a service." See: Leonard L. Berry, Kathleen Seiders, and Dhruv Grewal, 'Understanding service convenience' [2002] 66(2) *Journal of marketing* 1, 1.

⁹¹Karien Oude Wolbers and Nadine Walter, 'Silence Is Silver, but Speech Is Golden: Intelligent Voice Assistants (IVAs) and Their Impact on a Brand's Customer Decision Journey with a Special Focus on Trust and Convenience—A Qualitative Consumer Analysis in the Netherlands' [2021] 18(1) *IUP Journal of Brand Management* 7, 11.

⁹²This is so specifically in relation to the developments in contextual voice experiences.

⁹³On anthropomorphism and technology, see: Pankaj Aggarwal and Ann L. McGill, 'When brands seem human, do humans act like brands? Automatic behavioral priming effects of brand anthropomorphism' [2012] 39(2) *Journal of consumer research* 307–23; Nicolas Pfeuffer, Alexander Benlian, Henner Gimpel and Oliver Hinz, 'Anthropomorphic information systems' [2019] 61(4) *Business & Information Systems Engineering* 523.

forms an emotional connection with the device, albeit a one-sided one.⁹⁴ Studies have further shown that human-like characteristics in non-human objects can induce a high-level of trust and allow a person to sustain a stronger relationship with them.⁹⁵ To illustrate, a recent study showed that a robot asking people not to shut them off ignited a social response from the participants.⁹⁶ Children, in particular, tend to view a VA as a social partner and want to get to know them.⁹⁷ It is also not uncommon for consumers to pose queries about all kinds of intimate questions, including asking to look up illness symptoms or baby names, that indicate trust and allow the platform to glean into their future needs.⁹⁸

It is noteworthy that even though consumers effectively give up some of their decision-making powers to the algorithmic agent⁹⁹, they may retain a sense of control over their digital assistant's decisions due to the narrative of a master-servant dynamic. This perceived power is crucial for increasing consumer confidence and the technology's adaptability.¹⁰⁰ People's status can affect their wariness to the VAs as "[a]nthropomorphism increases risk perception for those with low power, whereas it decreases risk perception for those with high power."¹⁰¹ Similarly, consumers demonstrate increased and more enjoyable interactions with VAs when they feel superior to their devices. In effect, this perceived power mediates their willingness to purchase products with the help of a VA.¹⁰²

The state of the art of voice-enabled consumer profiling combined with the design of VAs' technology point to potent consumer influencing opportunities. Leading VAs' providers can engage in such influencing in a large-scale systemic manner. While it might be tempting to assign the

⁹⁴Vito Tassiello, Jack S. Tillotson, and Alexandra S. Rome, "'Alexa, order me a pizza!': The mediating role of psychological power in the consumer-voice assistant interaction" [2021] 38(7) *Psychology & Marketing* 1069, 1070.

⁹⁵Janarathanan Balakrishnan and Yogesh K. Dwivedi, 'Conversational commerce: Entering the next stage of AI-powered digital assistants', *Annals of Operations Research* [2021], 1-35, 6.

⁹⁶Atieh Poushneh, 'Humanizing voice assistant: The impact of voice assistant personality on consumers' attitudes and behaviors' [2021] 5 *Journal of Retailing and Consumer Services* 1, 1.

⁹⁷George Terzopoulos and Maya Satratzemi, 'Voice assistants and smart speakers in everyday life and in education' [2020] 19(3) *Informatics in Education* 473, 478.

⁹⁸Laura Lovett, 'Consumers interested in voice tech for health, adoption remains low, survey reports' (*mobihealthnews*, 31 October 2019) <www.mobihealthnews.com/news/north-america/consumers-interested-voice-tech-health-adoption-remains-low-survey-reports> accessed 15 December 2022.

⁹⁹Michal S. Gal, 'Algorithmic challenges to autonomous choice' [2018] 25 *Mich. Tech. L. Rev.* 59.

¹⁰⁰Atieh Poushneh, 'Humanizing voice assistant: The impact of voice assistant personality on consumers' attitudes and behaviors' [2021] 5 *Journal of Retailing and Consumer Services* 1, 7.

¹⁰¹Sara Kim and Ann L. McGill, 'Gaming with Mr. Slot or gaming the slot machine? Power, anthropomorphism, and risk perception' [2011] 38(1) *Journal of Consumer Research* 94, 104.

¹⁰²Vito Tassiello, Jack S. Tillotson, and Alexandra S. Rome, "'Alexa, order me a pizza!': The mediating role of psychological power in the consumer-voice assistant interaction" [2021] 38(7) *Psychology & Marketing* 1069, 1071.

potential adverse effects of hypernudging by VAs to fall under the remit of regulation as different regulatory fields play a positive role in safeguarding against harm, they are usually not as such concerned with competition concerns.¹⁰³ A further distinction can be made between individual and systemic harms, with relevant regulations to a large extent covering the former.¹⁰⁴ Competition law may complement regulation to address systemic effects on the market. The following section will proceed to showcase why hypernudging by VAs should, at the very least, come under the European competition authorities' radar.

3.2. *Hypernudging effects on competitive digital markets*

The assessment of hypernudging (by VAs) under European competition law necessitates demonstrating that the conduct actually or potentially harms the competitive process. Following modernization, European competition law enforcement is guided by economic principles and is focused on safeguarding economic values, placing consumer welfare at its forefront.¹⁰⁵ In the EU it is equated to consumer surplus – it is not enough that a firm's behaviour would increase producer surplus due to efficiencies, possibly at the expense of consumers.¹⁰⁶ With the consumer at the heart of European competition policy¹⁰⁷, the theories of harm that trigger Article 102 TFEU enforcement generally relate to negative effects upon consumer welfare, including those on price, output, choice, quality, or innovation.¹⁰⁸ European courts have not explicitly endorsed consumer welfare as an overarching goal of European competition law but

¹⁰³Amelia Fletcher, 'The EU Google decisions: extreme enforcement or the Tip of The Behavioral Iceberg?' [2019] *CPI Antitrust Chronicle* 1, 4.

¹⁰⁴Viktorija Morozovaite, 'Hypernudging in the changing European regulatory landscape for digital markets' [2022] *Policy and Internet* 1.

¹⁰⁵David J Gerber, 'Two forms of modernization in European competition law' [2008] *Fordham International Law Journal* 1235; Okeoghene Odudu, 'The wider concerns of competition law' [2010] *3(3) Oxford Journal of Legal Studies* 599, 600; Dzmityr Bartalevich, 'The influence of the Chicago School on the Commission's Guidelines, Notices and Block Exemption Regulations in EU competition policy' [2016] *54(2) JCMS* 267.

¹⁰⁶Anna Gerbrandy and Rutger Claassen, 'Rethinking European Competition Law: From a Consumer Welfare to a Capability Approach' [2016] *12(1) Utrecht Law Review* 1; Ioannis Lianos, 'Some reflections on the question of the goals of EU competition law.' In *Handbook on European Competition Law* (Edward Elgar Publishing, 2013); Victoria Daskalova, 'Consumer Welfare in EU Competition Law: What Is It (Not) About?' [2015] *Competition Law Review* 131, 144–45.

¹⁰⁷Neelie Kroes Member of the European Commission in charge of Competition Policy Preliminary Thoughts on Policy Review of Article 82 Speech at the Fordham Corporate Law Institute New York, 23rd September 2005, <https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_05_537> accessed 14 December 2022.

¹⁰⁸Jacques Crémer, Yves-Alexandre de Montjoye and Heike Schweitzer, *Competition policy for the digital era. Final Report* (Publications Office, 2019), <<https://data.europa.eu/doi/10.2763/407537>> accessed 24 October 2022; C-209/10 *Post Danmark* [2012] ECLI:EU:C:2012:172 para 51.

embraced a more pluralistic approach.¹⁰⁹ Competition rules are not to be applied in isolation from other Union policies but instead their interpretation requires balancing of different Treaty's objectives against each other.¹¹⁰

With the changing nature of consumer engagement, trusted VAs are well-positioned to hypernudge consumers towards commercial decisions. One could argue that in a commercial context, critical functions of VAs are to limit consumers' search and information costs. They may facilitate better market transparency and discovery of new, and better, products and services.¹¹¹ VAs are expected to assist consumers best when recommending items or shopping for them in the circumstances where "(i) there is effective competition in [voice assistants] market, (ii) the [voice assistant supplier] is independent – no integration or contracts with store operators, and (iii) the user may perfectly control the VA's shopping."¹¹² However, vertically integrated companies have incentives to introduce selection bias that favours their (partners') interests over the consumers' interests, and individuals may not be aware of such misalignment.¹¹³ In addition, automated systems may contain imperfections that unintentionally steer consumers against their interest.¹¹⁴

While the normative discussion on what constitutes consumer's "true interest" is outside the scope of this article, some observations on decision theory are helpful when considering hypernudging scenarios in digital markets. From neo-classical economic theory perspective, which is the basis of the current European competition policy, it is generally assumed that consumer's revealed preferences (actions) reflect their

¹⁰⁹Ioannis Lianos, 'Some reflections on the question of the goals of EU competition law.' In *Handbook on European Competition Law* (Edward Elgar Publishing 2013); Anne C. Witt, 'Public policy goals under EU competition law – now is the time to set the house in order' [2012] 8(4) *European competition journal* 443.

¹¹⁰Anne C. Witt, 'Public policy goals under EU competition law – now is the time to set the house in order' [2012] 8(3) *European competition journal* 443. See also, recent rhetoric on fairness and fair competition in Case T-612/17 *Google and Alphabet v Commission (Google Shopping)* [2021] ECLI:EU:T:2021:763, paras 432–33.

¹¹¹Jan Trzaskowski, 'Data-driven value extraction and human well-being under EU law' [2022] *Electronic Markets* 449; Michal Gal, "Algorithmic challenges to autonomous choice"[2018] 25 *Mich. Tech. L. Rev.* 59, 61.

¹¹²Vicoriia Noskova, 'Voice assistants as gatekeepers for consumption? - how information intermediaries shape competition' [2022] *European Competition Journal* 1, 5.

¹¹³Maurice E. Stucke and Ariel Ezrachi. "How digital assistants can harm our economy, privacy, and democracy." *Berkeley Technology Law Journal* 32, no. 3 (2017): 1239–1300, 1257; and interesting on Apple's self-preferencing in App Store, and how it resulted in welfare-reduction for consumers, see: Xuan Teng, Self-preferencing, quality provision and welfare in mobile application markets (2022).

¹¹⁴Melumad, Shiri, Rhonda Hadi, Christian Hildebrand, and Adrian F. Ward. "Technology-augmented choice: How digital innovations are transforming consumer decision processes." *Customer Needs and Solutions* 7, no. 3 (2020): 90–101, 97.

normative preferences (actual interests).¹¹⁵ Accordingly, when consumers follow VA's recommendations or allow it to shop for them, the assumption is that the VA serves their preferences and therefore contributes to maximizing consumer welfare.

However, behavioural insights show that, at least in some cases, revealed preferences cannot be treated as normative. The dichotomy between revealed and normative preferences is apparent in decision-making situations where: (1) consumer is exposed to a default, and therefore is making a passive choice; (2) decisions are complex, requiring consumer incur cognitive costs; (3) consumer lacks personal experiences; (4) marketing with branded commodities is involved; (5) consumer follows impulses and does not account for the long-term consequences.¹¹⁶ Thus, consumer choices do not always equate to their preferences, instead they could be viewed as a combination of outcome of preferences and application of some heuristics, as well as decision-making errors.¹¹⁷ Accordingly, people's decision-making is heavily influenced by environmental and cognitive constraints – they can be (*hyper*)nudged towards market outcomes that are contrary to their self-interest.¹¹⁸

In this regard, consider the recent empirical study which demonstrated how conversational robo advisors influence consumers' perception of trust, the evaluation of a financial services firm, and decision-making. The results indicated that consumers are significantly more likely to follow investment advice from a conversational robo advisor compared to non-conversational one, even if the investment advice was inconsistent with their risk profile or invoked larger annual management fees.¹¹⁹ While financial products are highly complex even for sophisticated

¹¹⁵John Beshears, James J. Choi, David Laibson and Brigitte C. Madrian, 'How are preferences revealed?' [2008] 8–9 *Journal of Public Economics* 1787.

¹¹⁶*Ibid.*, 1788–89.

¹¹⁷*Ibid.*

¹¹⁸To illustrate the power of context in steering consumers' behavior consider the example of addictive design. The term emerged in relation to the design of social media digital user interfaces, such as Instagram, which deliberately leverage human attentive and affective systems to make them stay and engage with the platform longer, often at the expense of their mental health, whilst being exposed to ads. For discussion, see: Center for Humane Technology, 'Ledger of Harms' (June 2021) <<https://ledger.humanetech.com/>> accessed 6 April 2022; James N. Rosenquist, Fiona M. Scott Morton and Samuel N. Weinstein, 'Addictive technology and its implications for antitrust enforcement' [2021] 100 *NCL Rev.* 431; Nir Eyal, *Hooked: How to build habit-forming products* (Penguin 2014). Georgia Wells, Jeff Horwitz and Deepa Seetharaman, 'Facebook knows Instagram is toxic for ten girls, company documents show' (*The Wall Street Journal*, 14 September 2021) <www.wsj.com/articles/facebook-knows-instagram-is-toxic-for-teen-girls-company-documents-show-11631620739> accessed 15 December 2022.

¹¹⁹Christian Hildebrand and Anouk Bergner, 'Conversational robo advisors as surrogates of trust: onboarding experience, firm perception, and consumer financial decision making' [2021] 49(4) *Journal of the Academy of Marketing Science* 659.

consumers, potentially influencing their inclination to follow the advice, the findings should raise curiosity for future research as to what extent consumers do follow the recommendations of VAs for unfamiliar products and services without double-checking whether their attributes fit their interests or exploring alternatives.

When it comes to competition law analysis, hypernudging, and consumer influencing more generally, are not directly addressed by European competition law. Even though personalization – one of the key features of hypernudging – has gained some traction in the literature¹²⁰, its welfare effects are ambiguous and no article 102 TFEU investigation directly about personalization has been opened in the EU at the time of writing. Furthermore, most contributions focus on collection of big data, personalized pricing and behavioural manipulation vis-à-vis exploitative abuses, leading with the argument that consumers are harmed directly.

This article deviates from existing literature by showcasing that hypernudging could lead to potential exclusionary effects on the market. Even though consumers may experience economic harm by being exposed to biased dynamically personalized offerings that deviate from their best interests, competition in the downstream market may, by the same token, be harmed due to firms using behavioural insights on a large scale to shape market's demand side. Therefore, when it comes to consumer influencing, one can establish a link between exploitative and exclusionary effects; the former reinforces the latter.

It should be noted that the connection between exclusion and exploitation has been implicitly touched upon in 2019 Bundeskartellamt's decision against Facebook, which was appealed and ultimately referred for a preliminary ruling to the ECJ.¹²¹ It was found that Facebook

¹²⁰Personalised pricing, as a form of price discrimination, was one of the first personalisation practices explored by academics and practitioners in the competition law field. In this context, the personalisation of online prices and offers increases discrimination between consumers interacting via digital interfaces. See the literature on personalised pricing and its ambiguous effects on consumer welfare, fairness and social justice: Sauter, Wolf. 'A duty of care to prevent online exploitation of consumers? Digital dominance and special responsibility in EU competition law' [2020] 8(2) *Journal of Antitrust Enforcement* 406–27; OECD, 'Personalised pricing in the digital era' DAF/COMP(2018)13; Christopher Townley, Eric Morrison and Karen Yeung, 'Big data and personalised price discrimination in EU competition law' [2017] 36 *Yearbook of European Law*, 14; Fabrizio Esposito, 'Making personalised prices pro-competitive and pro-consumers' [2020] CAHIERS DU CeDIE WORKING PAPERS 2020/02; Marco Botta and Klaus Wiedemann, 'To discriminate or not to discriminate? Personalised pricing in online markets as exploitative abuse or dominance' [2020] 50(3) *European Journal of Law and Economics* 381.

¹²¹Bundeskartellamt, 'Bundeskartellamt prohibits Facebook from combining user data from different sources' (7 February 2019), < www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2019/07_02_2019_Facebook.html > accessed 14 December 2022; Case C-252/21 *Meta Platforms Inc., formerly Facebook Inc., Meta Platforms Ireland Limited, formerly Facebook Ireland Ltd., Facebook Deutschland GmbH v Bundeskartellamt*, intervener: Verbraucherzentrale Bundesverband e.V. [2022] Opinion of AG Rantos.

abused its dominance in the market for social networks by using its terms of service to collect consumers' personal data on third party websites to provide greater personalization of services. According to the Federal Supreme Court, Facebook's personalized user experience was equivalent to "imposed extension of services", as consumers were forced to accept on- and off-Facebook data processing as a whole package irrespective of whether they wanted such extension.¹²² This exploitative behaviour was found to impede competition by limiting consumer choice and degrading service quality.¹²³ The conduct was subsequently considered to indirectly contribute to creating exclusionary effects, as by virtue of imposed unfair terms Facebook was able to amass huge quantities of consumer data, raising barriers to entry and expansion for competitors on the advertising side of the market.¹²⁴ In other words, exclusion was reinforced by exploitative conduct. Similarly, a nexus between exploitative and exclusionary effects could be identified in the context of hypernudging by VAs.

Coming back to the previous example, once a busy parent requests to order or recommend diapers, a VA may point the consumer towards the home (or partner) brand, reciting their best-selling points. It may do so in a way that frames the product to meet individual consumer's requirements; it may adjust recommendations according to the consumer's mood; or, in time, it may recognize a good moment to request a consumer to make it an automatically re-occurring purchase. In all these scenarios, the VA would be hypernudging an individual towards their profit-driven choices that may not accurately reflect consumer's interests and preferences.¹²⁵ What makes hypernudging by VAs more challenging to identify and assess than more traditional forms of steering, such as search results by a ranking algorithm or even a personalized recommendation delivered by a recommender system, is that the hypernudging mechanism allows presenting multiple recommendations at different times, perhaps through different channels within the respective platform ecosystem the VA belongs to. Consequently, the consumer steering becomes not only more covert but also more potent.

¹²²Liza Lodvdahl Gormsen and Jose Tomas Lianos, 'Facebook's exploitation and exclusionary abuses in the two-sided market for social networks and display advertising' (2022) 10(1) *Journal of Antitrust Enforcement* 90, 102; Klaus Wiedemann, A matter of choice: the German Federal Supreme Court's interim decision in the abuse of dominance proceedings *Bundeskartellamt v Facebook* (16 November 2020) 1170.

¹²³Liza Lodvdahl Gormsen and Jose Tomas Lianos, 'Facebook's exploitation and exclusionary abuses in the two-sided market for social networks and display advertising' [2022] 10(1) *Journal of Antitrust Enforcement* 90, 102.

¹²⁴*Ibid.*, 90.

¹²⁵Michal S. Gal, 'Algorithmic challenges to autonomous choice', 25 *Mich. Tech. L. Rev.* [2018] 59, 66.

The abovementioned scenario points to problematic market-level outcomes when VAs engage in a systemic diversion of consumer attention and consequently distort demand, especially in the context of biased recommendations that favour some goods and services over the others.¹²⁶ Better-quality and value offers may end-up hidden from consumers, resulting in loss of consumer surplus and profits for competitors.¹²⁷ However, the firms are incentivized not only by increasing their profits, but also the possibility to control the dissemination of innovations in their respective platform ecosystems, thereby limiting the risk of being disrupted.¹²⁸

The systemic diversion of attention has been brought up in abuse of dominance assessments as an issue that could lead to exclusionary effects and therefore reduction of consumer choice. In the abovementioned *Google Android* decision, which concerned tying Google Search app with the Play Store, one of the main points of contention was examining the extent to which granting a default status to an app will result in significant changes in its levels of usage.¹²⁹ The Commission noted that by foreclosing access to rival search engines the company was able to improve their search service by gathering more search queries and user data. Thus, by securing a user's attention on one market, the company had an additional advantage over rivals in other markets within its platform ecosystem.¹³⁰ This was confirmed by the General Court on 14 September 2022.¹³¹

¹²⁶Melumad, Shiri, Rhonda Hadi, Christian Hildebrand, and Adrian F. Ward, 'Technology-augmented choice: How digital innovations are transforming consumer decision processes' [2020] 7(3) *Customer Needs and Solutions* 90, 99.

¹²⁷For example, a recent empirical study by Xuan Teng (2022) examined self-preferencing in the US app store markets from April to August 2019. It found that Apple's ownership gave it an advantage over independent apps in the search results. Eliminating the identified self-preferencing increases consumer welfare by 2.2 million dollars and independent developer profits by 1.9 million dollars. See: Xuan Teng, 'Self-preferencing, quality provision, and welfare in mobile application markets' [2022] <www.researchgate.net/publication/360803188_Self-preferencing_Quality_Provision_and_Welfare_in_Mobile_Application_Markets> accessed 24 October 2022.

¹²⁸Frédéric Marty, 'Competition and Regulatory Challenges in Digital Markets: How to Tackle the Issue of Self-Preferencing?' No. 2021–20. Groupe de REcherche en Droit, Economie, Gestion (GREDEG CNRS), Université Côte d'Azur, France, 2021, p.19. In reference to the way these platforms manage their consumer demand, Lianos compares them to centrally planned mini economies. See : Ioannis Lianos, 'Competition law in the digital era: a complex systems perspective' [2019] <<https://ssrn.com/abstract=3492730>> accessed 14 December 2022.

¹²⁹Robert Stillman, Pierre Regibeau, Oliver Latham, Federico Etro, Cristina Caffarra, Matthew Bennett, 'Google Android: European 'techlash' or milestone in antitrust enforcement' (*voxeu*, 27 July 2018)<<https://voxeu.org/article/google-android-european-techlash-or-milestone-antitrust-enforcement>> accessed 15 December 2022.

¹³⁰Giorgio Monti, 'Attention intermediaries: regulatory options and their institutional implications' [2020], 8.

¹³¹*Google Android* (Case AT.40099) Decision C(2018) 4761 final.

Notably, VAs are different from other intermediaries in the “attention economy”, such as social media platforms.¹³² They generally do not aim to extend consumer’s time engaging with them. For instance, Amazon has limited advertising options for Alexa, while Google prohibits advertising via its VA, despite earlier attempts to do so.¹³³ Instead, VAs promise to serve consumers in micro-moments and leave them with more time and cognitive resources to spend elsewhere. At the same time, VAs continuously listen to consumers’ mundane interactions and may divert their attention to products and services closely tied to VAs’ respective platform ecosystems. This opens doors for more subtle influencing than other obvious forms of advertising.

Convenience seeking consumers’ incentives to critically evaluate presented offers, or look out for alternatives, may be further diminished by the personalization aspect of VA’s recommendations. In the user-centric digital economy, the ultimate aim of mass segmentation is having consumers that each constitute their own “unique markets”¹³⁴; the concern is that consumers will be stuck in “targeting pockets”¹³⁵ where they are not exposed to diverse assortment of products and services. This exacerbates an information asymmetry not only between the consumer and the firm, but also the firm and its business customers.¹³⁶ Since consumers appreciate convenience and VAs typically present a single offer at a time (with a possibility to reject that offer to hear another one), non-discriminatory conditions for being recommended are particularly important for business customers whose sales depend on being discovered.¹³⁷

To illustrate the competitive concerns related to hypernudging by VAs, a parallel could be drawn with the recent Commission’s

¹³²Tim Wu, ‘Blind spot: The attention economy and the law’ [2018] 82 Antitrust Law Journal 771; John M. Newman, ‘Antitrust in Attention Markets: Definition, Power, Harm’ [2020] University of Miami Legal Studies Research Paper 3745839.

¹³³Jesus Martin, ‘Advertising in voice interfaces’ (14 July 2020) <<https://uxdesign.cc/advertising-in-voice-interfaces-4b1ca14fa28b>> accessed 15 December 2022.

¹³⁴Karen Yeung, ‘Five fears about mass predictive personalisation in an age of surveillance capitalism’ [2018] International Data Privacy Law, 10; Inge Graef, ‘Consumer sovereignty and competition law: From personalization to diversity’ [2021] 58(2) Common Market Law Review; Jan Trzaskowski, ‘Data-driven value extraction and human well-being under EU law’ [2022] Electronic Markets 449.

¹³⁵Wachter et al (2022) advocate for a new measure “concentration after personalization index” (CAPI) to aid in assessing competitive dynamics. See: Sandra Wachter, Fabian Stephany, Johann Laux, Chris Russell and Brent Mittelstadt, ‘The Concentration-after-Personalisation Index (CAPI): Governing Effects of Personalisation Using the Example of Targeted Online Advertising’ [2022] <<https://ssrn.com/abstract=4084457>> accessed 14 December 2022.

¹³⁶Trzaskowski, Jan. “Data-driven value extraction and human well-being under EU law.” Electronic Markets [2022]: 447.

¹³⁷Noga Blickstein Shchory and Michal Gal, ‘Voice Shoppers: From Information Gaps to Choice Gaps in Consumer Markets’ [2022] 88(1) Brooklyn Law Review. This is also important in relation to behavioral research on frictions – people like to paddle the path of least resistance.

investigation into Amazon's "Buy Box." In its preliminary view, the Commission held that the company artificially favoured its own retail business or of those sellers that use Fulfilment-by-Amazon (FBA) service, when selecting a winner of the "Buy Box."¹³⁸ Being crowned as a winner is important for marketplace sellers as prominent placing of their offer stimulates a vast majority of sales. In December 2022, the Commission accepted Amazon's proposed commitments, including the application of non-discriminatory conditions and criteria for featured offer and the display of a second offer on the offer display.¹³⁹ As will be further discussed in section 4.2, the Commission and the Courts start to recognize the power of biased prominent product placing in digital environments for potentially distorting consumer demand. The difference between the abovementioned "Buy Box" example and VAs is that in the former scenario, consumers are simultaneously exposed to the featured offer and several alternatives that match their search criteria on the Amazon Marketplace webpage or app interface. The visual images and reviews may be helpful in supplementing decision-making, often they must still actively take a few steps before the product is purchased. In contrast, with VAs, this power of biased prominent product placing is further exacerbated since consumers are exposed to one product at the time. Without visual cues and very little information provided, they effectively rely on the VAs recommendation even more.

The above discussion illustrates that hypernudging by VAs is no longer about merely influencing an individual and may lead to negative effects on the market level. Even though exploitation due to direct consumer harm has increasingly been considered a viable route that competition authorities may take in instances involving personalized services and behavioural manipulation, exclusionary effects should not be overlooked since with technological developments, the familiar abusive

¹³⁸AT.40703 *Amazon - Buy Box*; European Commission Press Release, 'Antitrust: Commission sends Statement of Objections to Amazon for use of non-public independent seller data and opens second investigation into its e-commerce business practices' (10 November 2020) <https://ec.europa.eu/commission/presscorner/detail/en/ip_20_2077> accessed 15 December 2022; Petar Petrov, 'The European Commission Investigations against Amazon – a Gatekeeper Saga' (Kluwer Competition Law Blog 18 December 2020) <http://competitionlawblog.kluwercompetitionlaw.com/2020/12/18/the-european-commission-investigations-against-amazon-a-gatekeeper-saga/#_ftn2> accessed 15 December 2022; see also a recent UK antitrust class action for algorithmic abuse in "Buy Box": CPI, 'Amazon faces UK Antitrust Class Action for Algorithm Abuse' (20 October 2022) <www.competitionpolicyinternational.com/amazon-faces-uk-antitrust-class-action-for-algorithm-abuse/> accessed 15 December 2022.

¹³⁹Amazon, Case COMP/AT.40462 and Case COMP/AT.40703 Commitment Proposal. <https://ec.europa.eu/competition/antitrust/cases1/202229/AT_40703_8414012_1177_3.pdf> accessed 15 December 2022; Commission, 'Antitrust: Commission accepts commitments by Amazon barring it from using marketplace seller data, and ensuring equal access to Buy Box and Prime' (20 December 2022) <https://ec.europa.eu/commission/presscorner/detail/en/ip_22_7777> accessed 21 December 2022.

conduct is expected to morph and advance in form. When it comes to anticompetitive self-preferencing, hypernudging may prove to be a vehicle for more covert and potent “self-preferencing on steroids.”

4. Anticompetitive self-preferencing analysis of hypernudging by voice assistants

Hypernudging by VAs present new challenges to the functioning of the digital markets. The concerns are well summarized by the Stigler Committee: even though consumers retain an illusion of control over their digital interfaces and decisions, it is digital platforms that have a detailed “minute-by-minute control over their interfaces and can present a façade of competition, choice, autonomy when in fact users are directed by behavioural techniques.”¹⁴⁰ Nevertheless, while consumer steering may be viewed as problematic or unethical, it does not have to constitute a competition law infringement. This section will examine the legal position of self-preferencing under European competition law and apply its legal criteria to hypernudging by VAs. Given the technological developments, ongoing UI shifts and novel ways, such as hypernudging, to engage in problematic market behaviours, this section will conclude with remaining queries about the future of anticompetitive self-preferencing.

4.1. Self-preferencing under article 102 TFEU

Self-preferencing practices have become a contentious subject in European competition law enforcement, particularly in digital markets.¹⁴¹ Considered to be one of the flavours of discriminatory behaviour¹⁴²,

¹⁴⁰Stigler Committee on Digital Platforms: Final Report [2019] 37. <www.chicagobooth.edu/-/media/research/stigler/pdfs/digital-platforms---committee-report---stigler-center.pdf> accessed 24 October 2022.

¹⁴¹Jacques Crémer, Yves-Alexandre de Montjoye and Heike Schweitzer, *Competition policy for the digital era. Final Report* (Publications Office, 2019), <<https://data.europa.eu/doi/10.2763/407537>> accessed 24 October 2022; *Google Search (Shopping)* (Case AT.39740), Commission decision of 27 June 2017; *Google Android (Case AT.40099)* Commission Decision of 18 July 2018; Commission, ‘Antitrust: Commission sends Statement of Objections to Amazon for the use of non-public independent seller data and opens second investigation into its e-commerce business practices’ IP/20/2077 (Brussels, 20 November 2020); Commission, ‘Antitrust: Commission sends Statement of Objections to Apple on App Store rules for music streaming providers’ IP/21/2061 (Brussels, 30 April 2021); Commission, ‘Antitrust: Commission opens investigation into possible anticompetitive conduct by Google in the online advertising technology sector’ (Brussels, 22 June 2021); Autorità Garante della Concorrenza e del Mercato (Italian Competition Authority), A528, 9 December 2021.

¹⁴²For a summary of different forms of discrimination in European competition law, see: Inge Graef, ‘Differential Treatment in P2B relations: EU competition law and economic dependence’ [2019] 38 Yearbook of European Law 448.

it is broadly defined as “giving preferential treatment to one’s own products or services, or one from the same ecosystem, when they are in competition with products or services provided by other entities.”¹⁴³ The practice of self-preferencing can take two forms. The first corresponds to competitive distortions on a downstream market induced by a vertical integration of the upstream market dominant player. The second relates to preferential treatment that benefits an independent player, instead of a downstream subsidiary.¹⁴⁴

Self-preferencing is a specific technique of leveraging behaviour, which refers to the extension of an undertaking’s market power to a neighbouring market.¹⁴⁵ As such, leveraging is a generic term that is not indicative of article 102 TFEU infringement.¹⁴⁶ It may take various forms, some of them having been found abusive in the past.¹⁴⁷

With digital markets characterized by conglomeration and platform integration into vertical and neighbouring markets, the concerns over anti-competitive self-preferencing have also increased.¹⁴⁸ The platform architecture and ecosystem governance play a role in enabling digital platforms to implement self-preferencing strategies.¹⁴⁹ The incentives for such conduct emerge as self-preferencing can be profitable as soon as it protects the upstream position or allows leverage into adjacent markets.¹⁵⁰

¹⁴³Jacques Crémer, Yves-Alexandre de Montjoye and Heike Schweitzer, *Competition policy for the digital era. Final Report* (Publications Office, 2019) 66, <<https://data.europa.eu/doi/10.2763/407537>> accessed 24 October 2022.

¹⁴⁴Frédéric Marty, *Competition and Regulatory Challenges in Digital Markets: How to Tackle the Issue of Self-Preferencing?* No. 2021-20. Groupe de REcherche en Droit, Economie, Gestion (GREDEG CNRS), Université Côte d’Azur, France, 2021, 17. See also on discrimination : R. Donoghue QC, ‘The quiet death of second line discrimination as an abuse of dominance: Case C-525/16 MEO’ [2018] 9 *Journal of European Competition Law and Practice* 443, 444; see also Graef on the analytical framework of differentiated treatment which includes a hybrid option: Inge Graef, ‘Differential Treatment in P2B relations: EU competition law and economic dependence’ [2019] 38 *Yearbook of European Law* 448.

¹⁴⁵Gergely Csurgai-Horvath, ‘Is it unlawful to favour oneself?’ [2022] *Hungarian Journal of Legal Studies* 4.

¹⁴⁶T-612/17 *Google and Alphabet v Commission (Google Shopping)*, para 162–63.

¹⁴⁷In particular in relation to abuses involving tying and bundling, unfair trading conditions and essential facilities doctrine, thereby providing the contours for limits to preferential treatment. See: Nicolas Petit, ‘Theories of self-preferencing under article 102 TFEU: a reply to Bo Vesterdorf’ [2015] *Competition Law and Policy Debate* 1, 9. For opposing view, see: Bo Vesterdorf, ‘Theories of self-preferencing and duty to deal—two sides of the same coin?’ [2015] 1 *Competition Law & Policy Debate* 4.

¹⁴⁸Gergely Csurgai-Horvath, ‘Is it unlawful to favour oneself?’ [2022] *Hungarian Journal of Legal Studies*, 6.

¹⁴⁹Cristina Caffarra, ‘Google Shopping: a shot in the arm for the EC’s enforcement effort, but how much will it matter?’ (13 December 2021) *e-Competitions Bulletin*. < www.concurrences.com/fr/bulletin/special-issues/big-tech-dominance/104053> accessed 15 December 2022.

¹⁵⁰Frédéric Marty, *Competition and Regulatory Challenges in Digital Markets: How to Tackle the Issue of Self-Preferencing?* No. 2021-20. Groupe de REcherche en Droit, Economie, Gestion (GREDEG CNRS), Université Côte d’Azur, France, 2021, 17.

Article 102 TFEU does not prohibit such conduct if it falls within the scope of competition on merits; each case is subject to the effects test.¹⁵¹ After all, in specific circumstances, self-preferencing is a legitimate business strategy, and giving own products or services preferential treatment could be viewed as a reward for the firm's management that generates efficiencies for both the platform and consumers. A typical self-preferencing example includes supermarkets introducing home brand products in their assortment, which creates more choices and lower price offerings for consumers, increasing welfare.¹⁵² However, such an example in a brick-and-mortar context does not account for the complexities of the digital markets where market power is not only present, unlike most supermarket scenarios, but is also reinforced by the dynamics of intricately connected platform ecosystems, which may lead to a distortive effect on downstream markets.¹⁵³ In markets characterized by high barriers to entry with a specific platform serving as an intermediation infrastructure, clear benchmarks for identifying anticompetitive self-preferencing are ever-more important.¹⁵⁴

In practice, few abuse of dominance cases have focused on the self-preferencing theory of harm.¹⁵⁵ However, in the watershed *Google Shopping* judgement, the General Court for the first time confirmed that self-preferencing constitutes an independent form of abuse, differentiating it from other forms of leveraging cases, such as refusal to deal.

4.2. A turning point: *Google shopping*

In November 2021, the General Court delivered its long-awaited *Google Shopping* judgement, described as an “edifice of article 102 TFEU enforcement in digital space”.¹⁵⁶ It confirmed the Commission's decision, where the self-preferencing behaviour was for the first time sanctioned

¹⁵¹Jacques Crémer, Yves-Alexandre de Montjoye and Heike Schweitzer, *Competition policy for the digital era. Final Report* (Publications Office, 2019) 66, <<https://data.europa.eu/doi/10.2763/407537>> accessed 24 October 2022.

¹⁵²Ibid; Francine Lafontaine & Margaret Slade, Vertical Integration and Firm Boundaries: The Evidence [2007] 45 J. of Econ. Lit. 629.

¹⁵³Ioannis Lianos, 'Competition law in the digital era: a complex systems perspective' [2019] <<https://ssrn.com/abstract=3492730>> accessed 14 December 2022.

¹⁵⁴Jacques Crémer, Yves-Alexandre de Montjoye and Heike Schweitzer, *Competition policy for the digital era. Final Report* (Publications Office, 2019) 66–67, <<https://data.europa.eu/doi/10.2763/407537>> accessed 24 October 2022.

¹⁵⁵OECD 'Abuse of dominance in digital markets' (2020), 54. <www.oecd.org/daf/competition/abuse-of-dominance-in-digital-markets-2020.pdf> accessed 26 October 2022.

¹⁵⁶Cristina Caffarra, 'Google Shopping: a shot in the arm for the EC's enforcement effort, but how much will it matter?' (*e-Competitions Bulletin*, 13 December 2021) < www.concurrences.com/fr/bulletin/special-issues/big-tech-dominance/104053> last accessed 15 December 2022.

in an algorithmic context, building upon the “equal treatment” principle of European Union law.¹⁵⁷ Google was fined 2.42 billion euros for favouring its comparison-shopping service compared to competing comparison-shopping services on its general search results pages.¹⁵⁸ In effect, the company systemically directed (nudged) consumers towards its service in a secondary market.¹⁵⁹

Google’s behaviour consisted of two elements: the company was found to have consistently displayed its own comparison shopping services among the most prominent results on general search results pages and simultaneously actively demoted competing comparison shopping services on those results pages.¹⁶⁰ In this context, the Court started its analysis by rejecting “leveraging” as a relevant theory of harm here by stating that it is not a specific type of abuse but a more generic term encompassing several different practices.¹⁶¹

The Court did not lie down a universal criterion for identifying a behaviour as anticompetitive self-preferencing. Instead, it proceeded by assessing the context in which the alleged abuse took place, focusing Google’s conduct in relation to its business model. The distinction was made between Google’s general search results pages infrastructure, which is in principle open as “the rationale and value of a general search engine lie in its capacity to be open to results from external sources”¹⁶² and “other infrastructures referred to in the case-law, consisting of tangible or intangible assets (press distribution systems or intellectual property rights, respectively) whose value depends on the proprietor’s ability to retain exclusive use of them.”¹⁶³

Google’s conduct was considered to be abusive because it compromised the open nature of the product in question.¹⁶⁴ For a general search engine to limit “the scope of its results to its own entails an element of risk and is not necessarily rational”¹⁶⁵ unless the company

¹⁵⁷T-612/17 *Google and Alphabet v Commission (Google Shopping)*, para 155.

¹⁵⁸Summary of Commission Decision relating to the proceeding under Article 102 of the Treaty on the Functioning of the European Union and Article 54 of the EEA Agreement (Case AT.39740 Google Search (Shopping)) 2018/C 9/08, para 1 and 31.

¹⁵⁹Nicolo Zingales, ‘Antitrust intent in an age of algorithmic nudging’ [2019] 7(3) *Journal of Antitrust Enforcement* 386.

¹⁶⁰T-612/17 *Google and Alphabet v Commission (Google Shopping)*, para 187.

¹⁶¹*Ibid*, para 163.

¹⁶²*Ibid*, para 178.

¹⁶³*Ibid*, para 177.

¹⁶⁴Christian Ahlborn, Gerwin Van Gerven, and William Leslie, ‘Bronner revisited: Google Shopping and the Resurrection of Discrimination Under Article 102 TFEU’ [2022] *Journal of European Competition Law & Practice* 1, 3–4.

¹⁶⁵T-612/17 *Google and Alphabet v Commission (Google Shopping)*, para 178.

enjoys dominance that is not challengeable in the short term. By favouring its comparison-shopping services on search results pages, Google seems to have acted contrary to the “economic model underpinning the initial success of its search engine.”¹⁶⁶ In other words, Google’s behaviour ran against its business model, implying that self-preferencing could only be explained by Google’s goal to foreclose competition.¹⁶⁷

In light of the effects-based approach increasingly adopted in abuse of dominance cases, the Commission relied on extensive economic analyses and behavioural evidence showcasing the impact of Google’s conduct on competing comparison-shopping service providers’ traffic.¹⁶⁸ However, the judgement has been criticized for accepting a rather low standard for establishing anticompetitive effects.¹⁶⁹ According to the Court, it was sufficient to demonstrate potential restriction of competition – or that the conduct is merely capable of leading to the foreclosure¹⁷⁰ – without applying the as-efficient-competitor (AEC) test to non-price related practice.¹⁷¹

The Court deviated from the approach taken by the England and Wales High Court in *Streetmap.eu v Google Inc.*, which had been compared to the judgement in question.¹⁷² The case concerned online map provider Streetmap.eu, which accused Google of abusing its dominant position in the search engines market by placing its Google Maps thumbnail image at the top of the search engine results page and therefore favouring own online map services over competitors. Mr. Justice Roth held that to establish an alleged infringement, Streetmap.eu needed to demonstrate the actual effect of the conduct on the market for online mapping services instead of merely a potential effect.¹⁷³ He also concluded that in such a leveraging case, “where the likely effect is on the

¹⁶⁶Ibid, para 179.

¹⁶⁷Elias Deutscher, ‘Google Shopping and the Quest for a Legal Test for Self-preferencing Under Article 102 TFEU’ [2022] 6(3) European Papers 1345, 1353.

¹⁶⁸AT.39740 *Google Search (Shopping)* C(2017) 4444 final, para 375 and 460.

¹⁶⁹Renato Nazzini, ‘Standard of foreclosure under article 102 TFEU and the digital economy’ [2020] King’s College London Law School Research Paper Forthcoming; Ioannis Kokkoris, ‘The Google case in the EU: is there a case?’ [2017] 62(2) The Antitrust Bulletin 313–33.

¹⁷⁰T-612/17 *Google and Alphabet v Commission (Google Shopping)*, para 441: “It follows from the above that, in order to find that Google had abused its dominant position, the Commission had to demonstrate the – at least potential – effects attributable to the impugned conduct of restricting or eliminating competition on the relevant markets, taking into account all the relevant circumstances, particularly in the light of the arguments advanced by Google to contest the notion that its conduct had been capable of restricting competition.”

¹⁷¹T-612/17 *Google and Alphabet v Commission (Google Shopping)*, para 518 and 538–39.

¹⁷²Thomas Graf and Henry Mostyn, ‘Do We Need to Regulate Equal Treatment? The Google Shopping Case and the Implications of its Equal Treatment Principle for New Legislative Initiatives’ [2020] Journal of European Competition Law & Practice.

¹⁷³*Streetmap.eu Ltd v Google Inc* [2016] EWHC 253 (Ch).

non-dominant market, [...] the effect must be appreciable.”¹⁷⁴ Accordingly, it was held that Streetmaps.eu failed to demonstrate that Google’s conduct would have an appreciable effect on competition, and even in a contrary case, it was objectively justified.¹⁷⁵

Google Shopping adopting a more relaxed threshold for establishing anticompetitive foreclosure signals that competition law enforcers should not be forced to wait for the materialization of actual effects on digital markets, where devising and adopting effective remedies is not only challenging but often too late.¹⁷⁶ The judgment also referenced Google’s “super-dominant position” in the general search market, which has been interpreted to be relevant in assessing the effects of the undertaking’s conduct.¹⁷⁷ The stronger the market position, the greater the likelihood of foreclosure effect.¹⁷⁸ Since the Court did not explain the use of the term “super-dominance”, there is some room left for questioning how anticompetitive effects would be assessed and established when an undertaking engaging in self-preferencing behaviour does not hold such a strong market position. Considering this observation, it would be interesting to consider a case concerning general purpose VAs – a market in which the assessment of market definition and dominance would be the initial hurdles in building a successful abuse of dominance case.

Finally, it is noteworthy that the Court has explicitly relied on “the general principle of equal treatment, as a general principle of EU law, [which] requires that comparable situations must not be treated differently, and different situations must not be treated in the same way, unless such treatment is objectively justified.”¹⁷⁹ The principle of equal treatment was initially rooted in the market integration rationale and covered non-discrimination of imports, foreign companies and workers.¹⁸⁰ Its scope has since broadened to include the protection of natural persons, which links it closely to safeguarding fundamental

¹⁷⁴Ibid, para 97-98.

¹⁷⁵Ibid, para 177.

¹⁷⁶Cristina Caffarra, ‘Google Shopping: a shot in the arm for the EC’s enforcement effort, but how much will it matter?’ (*e-Competitions Bulletin*, 13 December 2021) < www.concurrences.com/fr/bulletin/special-issues/big-tech-dominance/104053 > accessed 15 December 2022.

¹⁷⁷T-612/17 *Google and Alphabet v Commission (Google Shopping)*, para 182-183.

¹⁷⁸C-52/09 *Konkurrensverket v TeliaSonera Sverige AB* [2011] ECLI:EU:C:2011:83, para 81; ‘Guidance on the Commission’s Enforcement Priorities in Applying Article 82 of the EC Treaty to Abusive Exclusionary Conduct by Dominant Undertakings’ (2009) OJ C45/7, para 20; Alessia Sophia D’Amico and Baskaran Balasingham, ‘Super-dominant and super-problematic? The degree of dominance in the Google Shopping judgement’ [2022] *European Competition Journal* 1.

¹⁷⁹T-612/17 *Google and Alphabet v Commission (Google Shopping)*, para 155.

¹⁸⁰Mark Bell, ‘The principle of equal treatment: widening and deepening’ [2011] In Paul Craig and Grainne De Burca (eds.) *The evolution of EU law* (Oxford University Press 2011) 611.

rights.¹⁸¹ The explicit mention of “equal treatment” in *Google Shopping* can be perceived as unprecedented in the context of European competition law.¹⁸² By using the general principle of equal treatment as an aid in interpreting EU primary law the Court further legitimized its decision to expand the range of conduct that is sanctioned under article 102 TFEU.¹⁸³ Furthermore, a reference could be made to the Court placing emphasis on Google’s market position in the general search market.¹⁸⁴ A specific mention was made to the common carriers’ obligations of equal treatment laid down in EU regulations on net neutrality (Regulation (EU) 2015/2120) and roaming (Regulation (EU) No 531/2012).¹⁸⁵ In combination with the “super-dominant” position of Google¹⁸⁶, the Court seems to point out that self-preferencing abuse is flexible enough to be transferred to other forms of discrimination.¹⁸⁷

4.3. Voice-based services vis-à-vis the future of self-preferencing

Google Shopping considered self-preferencing as an independent type of abuse and was criticized for providing vague standards for assessing when such behaviour deviates from competition on merits.¹⁸⁸ Since the facts of the case concern an investigation opened more than a decade ago, technological developments are expected to create new ways to foreclose competitors by self-favouring in digital markets.¹⁸⁹

¹⁸¹Ibid, 626.

¹⁸²Lena Hornkohl, ‘Article 102 TFEU, Equal Treatment and Discrimination after Google Shopping’ [2022] 13(2) *Journal of European Competition Law and Practice* 99, 106. It is not clear why the Court did not rely on equality of opportunity – an idea closely linked to equal treatment, since the case law has consistently stressed that “a system of undistorted competition can be guaranteed only if equality of opportunity is secured between the various economic actors.” See: C-280/08 P *Deutsche Telekom v Commission* [2010] ECLI:EU:C:2010:603, para 230; C-553/12 P *DEI v Commission* [2014] ECLI:EU:C:2014:2083, para 114; Case T-556/08 *Slovenska Posta v Commission* [2015] OJ C 155, 11.5.2015, para 100.

¹⁸³An excellent overview on general principles of EU law and their main functions: Koen Lenaerts and José A. Gutiérrez-Fons, ‘The constitutional allocation of powers and general principles of EU law’ [2010] 47(6) *Common Market Law Review*.

¹⁸⁴The link was made with the EU’s net neutrality legislation, hinting at the acceptance of the so-called “common carrier antitrust.” See: Lena Hornkohl, ‘Article 102 TFEU, Equal Treatment and Discrimination after Google Shopping’ [2022] 13(2) *Journal of European Competition Law and Practice* 99.

¹⁸⁵T-612/17 *Google and Alphabet v Commission (Google Shopping)*, para 180.

¹⁸⁶Ibid, para 182–83.

¹⁸⁷Lena Hornkohl, ‘Article 102 TFEU, Equal Treatment and Discrimination after Google Shopping’ [2022] 13(2) *Journal of European Competition Law and Practice* 99. See also discussion on Google Shopping and adherence to equal treatment principle to point towards a “neutrality regime.” See: Oscar Borgogno and Giuseppe Colangelo, ‘Platform and device neutrality regime: the transatlantic new competition rulebook for app stores’ [2022] 67(3) *The Antitrust Bulletin* 451.

¹⁸⁸Elias Deutscher, ‘Google Shopping and the Quest for a Legal Test for Self-preferencing Under Article 102 TFEU’ [2022] 6(3) *European Papers* 1345–361.

¹⁸⁹Konstantinos Stylianou, ‘Exclusion in Digital Markets’ [2018] 24 *Michigan Telecommunications & Technology Law Review* 181, 187.

Hypernudging by VAs provides a powerful depiction of an advanced way to engage in self-preferencing practices that could be considered by competition authorities. However, the functioning of the general-purpose VAs' market and their impact, as well as the understanding about hypernudging are yet limited. When it comes to consumer influencing, while digital nudging is becoming a "hot topic" in the digital policy circles, the discussions are predominantly concentrated in consumer law and data protection areas, and the subject is barely touched upon in the competition law debates.¹⁹⁰ This is logical considering that, at least on a surface, the harms would firstly materialize at an individual level, leading to an infringement of rights.¹⁹¹ Nevertheless, as discussed in section 3.2, exploitation of consumer characteristics and circumstances on a large-scale, systemic manner may create opportunities for firms to distort demand side of the downstream market(s).

In assessing hypernudging by VAs as a potential vehicle for self-preferencing that could lead to foreclosure of competitors, one can draw some lessons from the *Google Shopping* judgement. At its core, the problematic consumer steering in *Google Shopping* concerned framing of consumers' options. As demonstrated by the Commission's behavioural studies, prominent placing of Google's comparison-shopping services on the search engine results pages was effective because consumers were inclined to "paddle the path of least resistance" and click on the first results.¹⁹² This framing was applied to consumers uniformly, meaning that every consumer making a query on Google Search would receive Google's comparison shopping services recommendation at a specific prominently placed area on the search engine results page. The recommendation placing, therefore, would not account for different consumers' preferences and inclinations.

¹⁹⁰Autoriteit Consument & Markt. 2020. *Protection of the online consumer: Boundaries of online persuasion. Draft consultation document.* <www.acm.nl/sites/default/files/documents/2019-12/draft-consultation-acm-guidelines-on-protection-of-online-consumer-boundaries-of-online-persuasion_0.pdf> accessed 14 December 2022; BEUC, 'Dark patterns and the EU consumer law acquis' (9 February 2022) < www.beuc.eu/sites/default/files/publications/beuc-x-2022-013_dark_patterns_paper.pdf> accessed 16 December 2022; EDPB, 'Guidelines 3/2022 on Dark Patterns in social media platform interfaces: how to recognize and avoid them' (21 March 2022). < https://edpb.europa.eu/our-work-tools/documents/public-consultations/2022/guidelines-32022-dark-patterns-social-media_en> accessed 16 December 2022. Competition law discussion: OECD, 'Dark commercial patterns' (October 2022) OECD Digital Economy Papers No 336; See for US perspective: FTC, 'Bringing dark patterns to light. Staff report' (September 2022) < www.ftc.gov/system/files/ftc_gov/pdf/P214800%20Dark%20Patterns%20Report%209.14.2022%20-%20FINAL.pdf> accessed 16 December 2022; Gregory Day and Abbey Stemler, 'Are dark patterns anticompetitive?' [2020] 72 Ala. L. Rev. 1.

¹⁹¹For example, dark patterns may negatively affect data subject's and consumer's rights, respectively. See: Mark Leiser, 'Dark Patterns': a case for regulatory pluralism (2020, July 16). 'Dark Patterns': the case for regulatory pluralism. <<https://doi.org/10.31228/osf.io/ea5n2>> accessed 14 December 2022.

¹⁹²Case AT.39740 *Google Search (Shopping)* C(2017) 4444 final, para 375 and 460.

Hypernudging, on the other hand, is well suited to address consumer heterogeneity.¹⁹³ By engaging in hypernudging, market actors can harness voice UI affordances to exploit consumer's vulnerabilities in a dynamically personalized manner. In addition, hypernudging mechanism allows presenting consumer with multiple (behavioural) interventions, at different times, through different intra-platform or inter-platform channels, which assessed individually may not be indicative of problematic behaviour.¹⁹⁴ For instance, when a VA is asked to recommend a specific product, a consumer may have purposely been exposed to VA's suggested brand or model in the respective platform ecosystem prior, be it through an ad, ranking of items on a marketplace or video-content. Having vast amounts of consumer data leading VA providers are well-positioned to identify where in the purchasing funnel the consumer is and when, as well as how, they should be gently pushed to move further towards a purchase.¹⁹⁵ This multidimensionality perspective of hypernudging is particularly challenging in terms of observability and inferring causality, necessitating novel detection methods and techniques to be placed on the future research agenda.¹⁹⁶

Google Shopping is one, among other, cases which has shown that behavioural evidence is becoming utilized in competition law enforcement. In the world where behavioural insights can and are used to exploit consumer vulnerabilities to strategically influence their behaviour in a large-scale manner, taking stock of the relevant empirical behavioural analyzes is valuable in supplementing enforcement, and does not as such necessitate replacing of pre-existing neo-classical economics theories and tools that guided competition law so far.¹⁹⁷ The growing concern over using consumers' cognitive biases and emotional trigger

¹⁹³Stuart Mills, 'Finding nudge in the hypernudge' [2022] *Technology in Society*.

¹⁹⁴Viktorija Morozovaite, "Hypernudging in the changing European regulatory landscape for digital markets" [2022] *Policy and Internet* 1.

¹⁹⁵Viktorija Morozovaite, "Two Sides of the Digital Advertising Coin: Putting Hypernudging into Perspective" [2021] 5(2) *Markets and Competition Law Review* 105, 133.

¹⁹⁶Detecting even digital nudging practices, such as dark patterns, is a challenging task for enforcers. Personalized dark patterns, and taking a step further – hypernudging – are even more difficult to detect and enforce against by regulatory authorities. See: Thun Htut Soe, Cristiana Teixeira Santos, and Marija Slavkovic, 'Automated detection of dark patterns in cookie banners: how to do it poorly and why it is hard to do it any other way' [2022] *arXiv preprint arXiv:2204.11836*.

¹⁹⁷OECD refers to this as a "gap-filling function" of empirical behavioral analyses. See: DAF/COMP/M (2012)2/ANN5/FINAL Summary Record of the Discussion on Behavioural Economics (13 May 2016) 6; see on digital consumer vulnerability: Natali Helberger, Marijn Sax, J Strycharz, and H-W. Micklitz, 'Choice Architectures in the Digital Economy: Towards a New Understanding of Digital Vulnerability' [2022] 45(2) *Journal of Consumer Policy* 175.

points for anticompetitive purposes has also been corroborated by the reports on digital competition.¹⁹⁸

As a result, in an increasingly consumer-centric digital markets, competition authorities can no longer ignore the impact of business practices, such as hypernudging, that primarily target (individual) consumer experience as a means to foreclose competitors.

In addition, there are some key differences between the nature of voice-based services and general search market analyzed in *Google Shopping*, which seem to point to wider range of opportunities to engage in differential treatment between consumers and business customers in the case of the former. In the context of VAs, it is important to note that the business models are yet to fully crystallize as the companies are still finding their way in monetizing voice services. The reporting in November 2022 signalled that leading VAs providers have lost revenues, are scaling back on different voice services and are reshaping their strategies.¹⁹⁹ For example, Google is sunsetting Conversational Actions, which allowed third-party developers to build a voice-only service for Google Assistant.²⁰⁰ Instead, the focus is shifted to App Actions on Android, which allows giving voice commands to Android Apps, such as booking a rideshare or a table at a restaurant. The move seems to have realigned the incentives for developers to support Google's ecosystem as a whole.

It appears that the industry's development is moving towards VAs becoming a mode of engagement with digital products and services, voice being visualized a layer on top of them, rather than the assistance service being its own destination.²⁰¹ As the reach of VAs extends

¹⁹⁸Committee for the Study of Digital Platforms Market Structure and Antitrust Subcommittee Report (1 July 2019), available at: <<https://research.chicagobooth.edu/-/media/research/stigler/pdfs/market-structure-report.pdf?la=en&hash=E08C7C9AA7367F2D612DE24F814074BA43CAED8C>> accessed 12 December 2022; Australian Competition and Consumer Commission, 'Digital Platforms Inquiry' the Final Report (26 July 2019), available at: <www.accc.gov.au/publications/digital-platforms-inquiry-final-report> accessed 02/04/2020.

¹⁹⁹Okay Google, 'What's the Future of Smart Speaker Applications' (*Action.ai*, 4 November 2022) <<https://action.ai/ok-google-whats-the-future-of-smart-speaker-applications/>> accessed 16 December 2022; Parmy Olson, 'Alexa, when will you start make money?' (*Washington Post*, 2022) <www.washingtonpost.com/business/alexa-will-youever-make-money/2022/11/22/53caa54c-6a82-11ed-8619-0b92f0565592_story.html> accessed 16 December 2022.

²⁰⁰Derrek Lee, 'Google to sunset Assistant's Conversational Actions as focus shifts to App Actions on Android' (*androidcentral*, 14 June 2022) <www.androidcentral.com/apps-software/google-shutting-down-conversational-actions> accessed 16 December 2022.

²⁰¹Eric Hal Schwartz, 'Google Assistant Actions (Voice Apps) to Sunset, Focus Shifts to Android Apps' (*voicebot.at*, 13 June 2022) <<https://voicebot.at/2022/06/13/google-assistant-actions-voice-apps-to-sunset-focus-shifts-to-android-apps/>> accessed 16 December 2022; Simone Natale and Henry Cooke, 'Browsing with Alexa: Interrogating the impact of voice assistants as web interfaces' [2021] 43(6) *Media, Culture & Society* 1000.

beyond a specific business line within the respective multi-product and multi-actor ecosystem that the VA is operating in, ensuring the adherence to the general principle of equal treatment is paramount.²⁰² Therefore, when considering the exclusionary potential of specific VAs' practices, the platform ecosystem perspective becomes particularly important. This observation further feeds into the discussion on the relevant market definition in digital markets, as the current tools do not adequately grasp the issues related to multi-sided markets, zero-price services and platform ecosystems.²⁰³

Conclusion

The ongoing shift towards voice-based engagement with digital products and services is currently led by a handful of big technology companies that have also dominated the previous UI shifts. This article showcased why VAs by leading providers are well-positioned to engage in hypernudging - dynamically personalized steering - of consumers towards specific market outcomes, such as purchasing decisions, and to seamlessly shape their preferences in favour of platforms' economic imperatives. In such circumstances, hypernudging by VAs may be considered as a vehicle for engaging in anticompetitive self-preferencing that falls under article 102 TFEU.

The combination of hypernudging and voice-based services paints a picture of complexity, extent of which competition authorities have not dealt with before. This article highlighted the overlooked connections between direct consumer influencing and concomitantly direct consumer harm, and exclusionary effects, specifically when firms engage in self-preferencing behaviour by systemically diverting consumer attention towards favoured products or services. Hypernudging by VAs provides a powerful depiction of more advanced and novel ways for firms to engage in self-preferencing behaviour and points to the potential evolution of self-preferencing theory of harm, which was only recently confirmed in the *Google Shopping* judgement.

²⁰²Amelia Fletcher, 'Digital competition policy: are ecosystems different?' [2020] 13 DAF/Comp/Wd/96, 2.

²⁰³Jacques Crémer, Yves-Alexandre de Montjoye and Heike Schweitzer, *Competition policy for the digital era. Final Report* (Publications Office, 2019), 45–48 <<https://data.europa.eu/doi/10.2763/407537>> accessed 24 October 2022; Investigation of Competition in Digital Markets, Majority Staff Report and Recommendations, Subcommittee on Antitrust, Commercial and Administrative Law (2020), <https://judiciary.house.gov/uploadedfiles/competition_in_digital_markets.pdf?utm_campaign=4493-519> accessed 21 March 2022; Eben and Robertson, "The Relevant Market Concept in Competition Law and Its Application to Digital Markets: A Comparative Analysis of the EU, US, and Brazil", Graz Law Working Paper No 01-2021; Jacobides and Lianos, "Ecosystems and competition law in theory and practice" [2021] 30(5) Industrial and Corporate Change 1199, 1204–06.

The voice-based services are still at early stages and the policymakers are in a favourable position to shape this industry. Recent regulatory initiatives, including the DMA and the proposal for the European Data Act, are important contributions in fostering the contestability of general-purpose VAs market. While the impact of (upcoming) regulations is uncertain, it is a step in a positive direction since policymakers are actively dealing with identified concerns in this market. Since from the business perspective, VAs are developing to become a mode of engagement with digital products and services, instead of providing core platform service in its own right, there is a risk that the (proposed) legislation will focus on the former, more limited, perspective of the VAs market. Therefore, in the context of hypernudging by VAs, to grasp the full potential for exclusionary behaviour, it is imperative to account for the respective platform ecosystem the VA is operating in, as the VAs have a reach for strengthening business lines across that platform ecosystem as a whole.

ORCID

Viktorija Morozovaite  <http://orcid.org/0000-0002-0692-1586>

Acknowledgments

The author would like to thank Anna Gerbrandy, José van Dijck, Daniel Crane, Viktoria H.S.E. Robertson, Klaudia Majcer, Inge Graef, Lisanne Hummel, Jasper Sluijs, Sven E. Fortuin and the participants of Connected Life 2022 conference for insightful comments on draft versions of this article.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This research is supported by the European Research Council Starting Grant (Number: 852005) awarded to Prof. Anna Gerbrandy.