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Addictive Design as an Unfair Commercial Practice: The Case of Hyper-Engaging Dark Patterns

Fabrizio Esposito¹  and Thaís Maciel Cathoud Ferreira²

¹NOVA School of Law and CEDIS, Universidade Nova de Lisboa, Lisbon, Portugal and ²WhatNext.Law

Corresponding author: Fabrizio Esposito; Email: Fabrizio.Esposito@novalaw.unl.pt

Abstract

This article explains why hyper-engaging dark patterns should be considered unlawful in the European Union even though they are very common online, particularly on content-sharing platforms. A hyper-engaging dark pattern is a digital interface with an addictive design: it makes users spend more time interacting with the service by making use of big data analytics and one or more behavioural trait. Hyper-engaging dark patterns are a form of hypernudge. They exploit the dopamine cycle, reduce users' autonomy and may have additional detrimental health effects. The Unfair Commercial Practices Directive should be interpreted as prohibiting them either as a form of undue influence or under the general test pursuant to Article 5. Both the Digital Services Act and the Artificial Intelligence Act can play a beneficial but merely complementary role in combatting the diffusion of hyper-engaging dark patterns.

Keywords: Addictive design; dark pattern; hyper-engaging dark patterns; nudge; unfair commercial practices

I. Introduction

Infinite scroll, push notifications, likes and stories, amongst others, are all common features of digital platforms, especially content-sharing ones. Why are they so common? Because they hook users.

This article intends to raise awareness and stimulate public and private enforcement against a type of complex dark pattern that is hidden in plain sight, which we label hyper-engaging dark patterns (HEDPs). As explained in Section II.1, we define HEDPs as habit-forming hypernudges that make users spend more time interacting with a service. This goal will be achieved in two main steps. The first step is drawing the legal community's attention to HEDPs. These are the complex patterns behind the functioning of many online platforms, especially content-sharing ones. The second is arguing that HEDPs are unlawful under European Union (EU) law. In particular, under the Unfair Commercial Practices Directive (UCPD), HEDPs are best understood as an aggressive commercial practice in that they exercise undue influence on (average) consumers, making them spend more time online than they would do otherwise. Subordinately, HEDPs could be qualified as an unfair commercial practice under the general test pursuant to Article 5(2) UCPD.

To achieve its two goals, this article is structured as follows: Section II introduces the concept of HEDPs and discusses why their design makes them addictive and manipulative (Section II.1), and it then clarifies how the concept of HEDPs relates to the concepts of nudge, hypernudge, and dark pattern (Section II.2). Section III analyses the application of the UCPD to HEDPs. More precisely, Section III.1 shows that HEDPs meet the requirements of the transactional decision test and that HEDPs should be considered an aggressive

commercial practice and therefore prohibited (Section III.2) and, in any event, should be prohibited under the general clause enshrined in Article 5(2) (Section III.3). Section IV shows that the Digital Services Act (DSA) and the Artificial Intelligence Act (AI Act) are less useful in comparison to the UCPD to address HEDPs, but they are not irrelevant either. Section V concludes.

II. Hyper-engaging dark patterns

I. What they are and why they work so well

HEDPs capture and retain users' attention. More precisely, HEDPs are tactics that deplete users' attentional resources, reinforce their behaviour and manipulate them through an interface to develop the habit of using a service. These patterns are effective due to the use of adaptive algorithms and the interface's data-driven design. Infinite scroll, autoplay, push notifications, pop-ups, likes, emojis, the number of visualisations of one's contents, stories that disappear after a short period of time and even followers are all part of very sophisticated ways to capture and retain users' attention.

What HEDPs have in common despite their phenomenological variety is that they work by depleting users' attentional resources. Humans have limited attentional resources (the mental bandwidth¹), and HEDPs take advantage of this by constantly capturing users' conscious attention through design strategies such as notifications and pop-ups. By depleting attentional resources, HEDPs compromise users' ability to make rational choices and make them act and behave automatically.²

Adaptive algorithms play a crucial role in HEDPs.³ Content and design are personalised on online platforms using adaptive algorithms, which analyse user data and formulate predictions about future behaviour. These algorithms adjust the content shown to each user based on their previous interactions, creating a sense of reward and increasing behavioural reinforcement.

¹ "Mental bandwidth" is a term used to refer to humans' attentional resource capacity. See, generally, TD Bhargava, "Overview: The Science of Mental Bandwidth" <https://www.everydaybandwidth.com/uploads/4/5/7/0/45707533/overview_science_of_mental_bandwidth_bhargava2020.pdf> (last accessed 6 June 2023); S Mullainathan and E Shafir, *Scarcity: Why Having Too Little Means So Much* (London, Allen Lane 2013). The centrality of mental bandwidth for law-making in general and for consumer law in particular was recognised early on in the behaviourally informed EU legal scholarship: see A Alemanno and A-L Sibony, "The Emergence of Behavioural Policy-Making: A European Perspective" in A Alemanno and A-L Sibony (eds), *Nudge and the Law: A European Perspective* (Oxford, Hart Publishing 2015) p 10.

² P Atchley, SM Lane and K Mennie, "A General Framework for Understanding the Impact of Information Technology on Human Experience" in SM Lane and P Atchley (eds), *Human Capacity in the Attention Economy* (Washington, DC, American Psychological Association 2021); Center for Humane Technology, "How Social Media Hacks Our Brains" <<https://www.humanetech.com/insights/how-social-media-hacks-our-brains>> (last accessed 5 June 2023). The distinction between automatic and controlled processes largely matches the distinction between system 1 and system 2 popularised by behavioural sciences.

³ AL Mujica, CR Crowell, MA Villano and KB Udin, "Addiction by Design: Some Dimensions and Challenges of Excessive Social Media Use" (2022) 10(2) *Medical Research Archives* 1, 3; NA Fineberg et al, "Manifesto for a European Research Network into Problematic Usage of the Internet" (2018) 28 *European Neuropsychopharmacology* 1232; G Day and A Stemler, "Are Dark Patterns Anticompetitive?" (2020) 72 *Alabama Law Review* 1; Center for Humane Technology, *supra*, note 2; VR Bhargava and M Velasquez, "Ethics of the Attention Economy: The Problem of Social Media Addiction" (2021) 31(3) *Business Ethics Quarterly* 321; LE Willis, "Deception by Design" (2020) 34(1) *Harvard Journal of Law & Technology* 116; EG Ragnhild, OD Tønnesen and MK Tennfjord, "A Scoping Review of Personalized User Experiences on Social Media: The Interplay between Algorithms and Human Factors" (2023) 9 *Computers in Human Behavior Reports* 100253.

Behavioural reinforcement is thus a key component of HEDPs.⁴ More precisely, behavioural reinforcement exploits the brain's dopaminergic system, which attaches a craving for repetition to memories of satiation and pleasure. Dopamine is a hormone that plays a significant role in motivation and, crucially, habit formation. In simplistic terms, the activation of the dopaminergic system tells the individual to repeat what they did before to get that pleasant reward again.⁵ Under normal conditions, the dopamine circuit controls an individual's responses to natural rewards, such as food and sex.⁶ Importantly, the dopamine circuit leads to the strongest stimulus not as a reward to a just-ended experience of satiation and pleasure but in case of anticipation of a possible reward.⁷ Therefore, dopamine plays a more significant role in the motivation to get a reward than the pleasure of the reward itself.⁸

The dopamine cycle is a model describing the effects of dopamine on human behaviour. The dopamine cycle depicted in Figure 1 begins on the left side with a state of desire, referred to as "wanting", which is akin to a craving for stimulation that arises either from boredom or from habit formation. "Wanting" leads to "seeking" behaviours, which are intended to find sources of stimulation or to procure previously encountered rewards. Seeking leads organisms to "anticipate" the rewards that are being sought. "Triggers" represent specific signals that rewards may be coming or are near, which prompt additional actions related to the receipt or consumption of the "reward". Since the "anticipated reward" is often more potent than the received reward, this ensures that wanting and seeking continue, fuelling the next cycle in the series.⁹

To illustrate, consider a hungry person. Following the dopamine cycle, they want food, seek food and anticipate the reward; this anticipation then triggers a series of evaluations and actions leading to the acquisition of the material conditions leading to the reward. However – and this is the crucial point – the actual reward is less powerful than its anticipation. This leads to the repetition of the cycle.

HEDPs take advantage of the dopamine system to increase the frequency with which users access content-sharing platforms, especially social media. The leading framework to create habits in users is the Hook Model. The Hook Model was taught to Stanford marketing students and was later used as the basis for a best-selling book aptly called *Hooked: How to Build Habit-Forming Products*.¹⁰ From a non-marketeer's standpoint, the Hook Model is essentially a blueprint for building habit-forming choice architectures, demonstrating how, by taking advantage of the dopamine cycle, platforms can "hijack" consumers' brains and make using their products a frequent habit. The Hook Model consists of triggers, actions, variable rewards and investments.

Triggers in the Hook Model cue users to take action either through external or internal stimuli. Actions are behaviours done to satisfy the trigger and obtain a reward, which provides temporary satisfaction. Variable rewards in the Hook Model generate desire by offering unpredictable results, leading to a stronger desire for users and reduced rationality. Platforms use the scarcity effect¹¹ and remove natural stopping

⁴ G Moore, "The Pharmacology of Addiction" (2018) 29 *Parrhesia* 190; O Arias-Carrión et al, "Dopaminergic Reward System: A Short Integrative Review" (2010) 3 *International Archives of Medicine* 24.

⁵ Icahn School of Medicine at Mount Sinai, "Brain Reward Pathways" (2018) <https://neuroscience.mssm.edu/nestler/nidappg/brain_reward_pathways.html> (last accessed 20 March 2022).

⁶ *ibid.*

⁷ DN Greenfield, "What Makes the Internet and Smartphone so Addictive?" in ML Sean and P Atchley (eds), *Human Capacity in the Attention Economy* (Washington, DC, American Psychological Association 2021) p 27.

⁸ A Lembke, *Dopamine Nation: Finding Balance in the Age of Indulgence* (London, Headline 2021) p 41.

⁹ Mujica et al, *supra*, note 3, 16.

¹⁰ N Eyal, *Hooked: How to Build Habit-Forming Products* (London, Portfolio 2014).

¹¹ Center for Humane Technology, *supra*, note 2, 48; Greenfield, *supra*, note 7, 37–38.

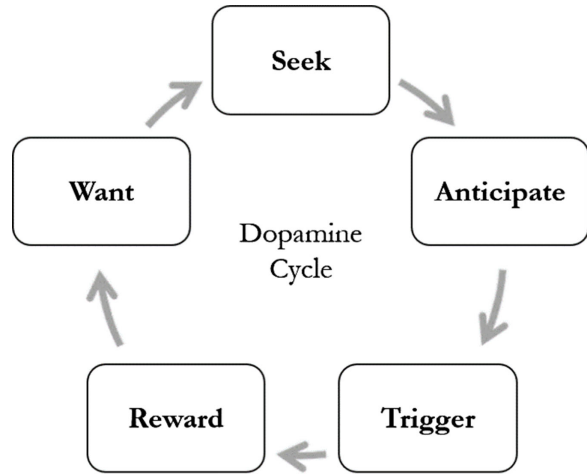


Figure 1. The dopamine cycle. Source: AL Mujica, CR Crowell, MA Villano and KB Udin, “Addiction by Design: Some Dimensions and Challenges of Excessive Social Media Use” (2022) 10(2) *Medical Research Archives* 1.

cues¹² to induce users to access their services more often. The investment phase prompts users to put something of value into the platform, increasing the likelihood of continued usage.¹³

As Figure 2 shows, the Hook Model stimulates the human brain’s need to complete an entire dopamine cycle, which, over time, may cause a person to create a new habit.¹⁴ First of all, they both start with a trigger. Next, the Hook Model makes the action step explicit, something that (surprisingly) remains implicit in the dopamine cycle. Then both put emphasis on the reward, but the Hook Model stresses the importance of the reward being variable to increase effectiveness. Finally, the Hook Model focuses on the importance of creating investment opportunities as a way to create a habit. The dopamine cycle instead specifies the underlying driver, namely the existence of a stimulus (the want) bringing the user to consider using the platform (the seek) and then leading to the action in anticipation of the dopaminergic response.

The Hook Model allows one to look at the deeper structure of content-sharing platforms and see their habit-forming orientation based on the exploitation of the dopamine cycle.¹⁵ Visualisations, likes, comments, sharing and new connections are the variable rewards that trigger users to use a platform. The success one has on a content-sharing platform (more visualisations, likes, comments, etc.) is the investment reinforcing the use of said platform. Content of limited existence such as “stories” and, more generally, the difficulty of retrieving past content (eg the lack of an advanced search function) create a sense of scarcity, while infinite scroll and autoplay remove stopping clues.

In other words, content-sharing platforms are data-driven hooks or, in the language adopted by this article, HEDPs. Indeed, all of the elements mentioned in the previous paragraph are typical in content-sharing platforms such as YouTube, Facebook, Instagram and TikTok. To clarify, although this article is not meant to suggest that all or only these services are illegal under EU law due to their use of HEDPs, the present analysis should be enough to raise doubts about the compliance with EU law of any service that is *prima facie* using HEDPs.

¹² Bhargava and Velasquez, *supra*, note 3, 6–20; F Lupiáñez-Villanueva et al, *Behavioural Study on Unfair Commercial Practices in the Digital Environment: Dark Patterns and Manipulative Personalisation* (“Dark Patterns Study”) (Luxembourg, Publications Office of the European Union 2020) p 33; Mujica et al, *supra*, note 3, 17.

¹³ Eyal, *supra*, note 10, 116–23.

¹⁴ Mujica et al, *supra*, note 3, 1–16.

¹⁵ Eyal, *supra*, note 10, 34–76.

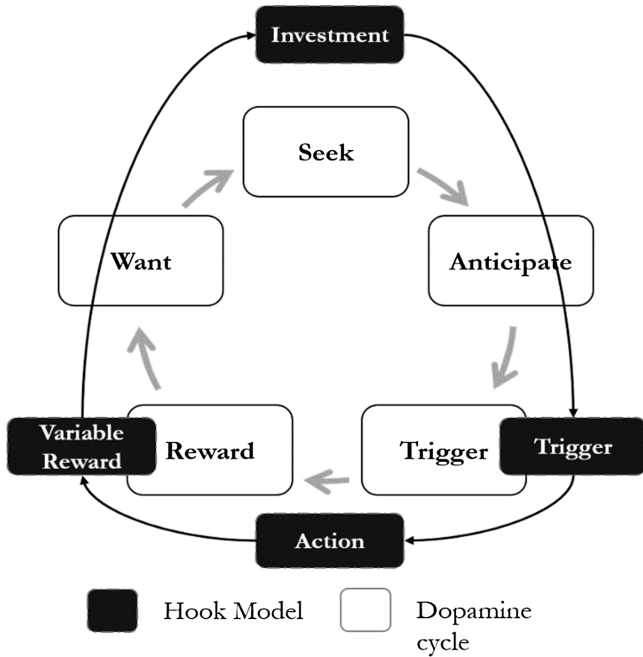


Figure 2. The Hook Model and the dopamine cycle.

In conclusion, HEDPs exploit the limited attentional resources of users through strategies and adaptive algorithms, making them addictive by design. HEDPs manipulate the brain's dopamine system to create habits and reinforce behaviour. The Hook Model is a blueprint used by marketers to build habit-forming choice architectures and create spontaneous engagement, and the success of the use of this model amongst content-sharing platforms can be explained by their reliance on HEDPs.

2. The harm that hyper-engaging dark patterns cause

HEDPs raise two main concerns. Their most pathological consequence is addiction. At the same time, their general habit-forming features make them manipulative.

Internet addiction¹⁶ has clinical and public health consequences for both children and adults. This addiction involves an irresistible urge to engage in online activities, leading to negative consequences for physical, mental, social and financial well-being.¹⁷ It can result in depression, anxiety, cognitive deficits and even changes in the brain's structure. By repeatedly activating the dopamine cycle, HEDPs make offline life less satisfying compared to highly stimulating virtual rewards.¹⁸ Moreover, with repeated exposure to the same or similar stimuli, humans need more stimuli to get the same effect.¹⁹

¹⁶ The use of the term "addiction" to refer to excessive Internet use is not pacific in the literature, and some specialists prefer to use concepts like "problematic Internet use". See B Fernandes, B Rodrigues Maia and HM Pontes, "Adição à Internet ou Uso Problemático da Internet? Qual dos Termos Usar?" (2019) 30 *Psicologia USP* 1.

¹⁷ World Health Organization, *Public Health Implications of Excessive Use of the Internet, Computers, Smartphones and Similar Electronic Devices: Meeting Report, Main Meeting Hall, Foundation for Promotion of Cancer Research, National Cancer Research Centre, Tokyo, Japan, 27-29 August 2014* (Geneva, World Health Organization 2015) <<https://apps.who.int/iris/handle/10665/184264>> (last accessed 5 June 2023); P Valkenburg, A Meier and I Beyens, "Social Media Use and Its Impact on Adolescent Mental Health: An Umbrella Review of the Evidence" (2022) 44 *Current Opinion in Psychology* 58.

¹⁸ Greenfield, *supra*, note 7, 27-33.

¹⁹ Lembke, *supra*, note 8, 46.

“Manipulation” is a contested concept. In a first approximation, manipulation is a hidden form of influence that circumvents conscious awareness and rational decision-making. Unlike persuasion or coercion, manipulation directs individuals to act for reasons that they cannot recognise or wish to avoid.²⁰ It infringes upon autonomy by preventing individuals from making independent decisions without their knowledge. Manipulation can be executed through the exploitation of cognitive biases and weaknesses, which the online environment makes easier.²¹ HEDPs utilise complex strategies that exploit users’ neurological and psychological systems, compromising their decision-making processes and inducing them to use online platforms more frequently and for longer periods.

Overall, HEDPs’ addictive and manipulative nature poses significant concerns for user well-being, including Internet addiction and compromised autonomy. Protecting individuals from HEDPs is crucial, hence the importance of investigating how to deploy EU law to safeguard them.

3. Hyper-engaging dark patterns at the crossroads between hypernudges and dark patterns

As stated earlier, we define HEDPs as hypernudges with the effect of making users spend more time interacting with a service. This definition can be made more explicit by discussing our understanding of what “nudge” and “hypernudge” mean and how they relate to HEDPs. On these grounds, it will be straightforward to show that HEDPs should indeed be considered a type of dark pattern.

We consider a “nudge” to be “an effect of the choice architecture that alters people’s behaviour by making use of one or more behavioural trait”, where “behavioural trait” refers to “all those elements of decision-making disregarded by rational choice theory”.²² As first used by Yeung, a hypernudge is a nudge that uses big data analytics.²³

In light of the previous discussion, it is clear that there are several elements of human decision-making that HEDPs make use of but which are ignored by rational choice theory. Moreover, it is straightforward to consider digital interfaces as a type of choice architecture. The importance of big data analysis to the functioning of HEDPs is also established,²⁴ so that it follows that the adjective “hyper” can also apply to the phenomena under consideration. Accordingly, a more explicit intentional definition of a “hyper-engaging dark pattern” can be: an effect of a particular type of choice architecture – namely, a digital interface – that makes users spend more time interacting with a service by making use of big data analytics and one or more behavioural trait.

²⁰ D Susser, B Roessler and H Nissenbaum, “Technology, Autonomy, and Manipulation” (2019) 8 *Internet Policy Review* 2; for an overview, see F Jongepier and M Klenk, “Online Manipulation. Charting the Field” in F Jongepier and M Klenk (eds), *The Philosophy of Online Manipulation* (London, Routledge 2022), especially pp 22–34.

²¹ See, eg, Susser et al, *supra*, note 20; Day and Stemler, *supra*, note 3, 15–22; Dark Patterns Study, *supra*, note 12, 91–92.

²² F Esposito, “Conceptual Foundations for a European Consumer Law and Behavioural Sciences Scholarship” in H-W Micklitz, A-L Sibony and F Esposito (eds), *Research Handbook in Consumer Law* (Cheltenham, Edward Elgar 2018) pp 42–45, articulates this definition by critically engaging with the definition by PG Hansen, “The Definition of Nudge and Libertarian Paternalism: Does the Hand Fit the Glove?” (2016) 7 *European Journal of Risk Regulation* 155.

²³ K Yeung, “‘Hypernudge’: Big Data as a Mode of Regulation by Design” (2017) 20 *Information, Communication & Society* 118. See also S Mills, “Finding the ‘Nudge’ in Hypernudge” (2022) 71 *Technology in Society* 102117 (focusing more on the definitional issues) and V Morozovaite, “Hypernudging in the Changing European Regulatory Landscape for Digital Markets” (2023) 15 *Policy & Internet* 78 (insightful for connecting hypernudges to user influence online).

²⁴ See *supra*, Section II.1.

It is noteworthy that this definition is effect-centred. For this reason, the definition is neutral as to whether it is desirable or not to have users spend more time using a service.²⁵ At the same time, the normative concern behind our investigation is that there is something undesirable about HEDPs. This concern can be made explicit by showing that these hypernudges are also dark patterns,²⁶ hence the focus of this article on HEDPs.

The expression “dark pattern” does not have a clear and uncontroversial definition in the literature,²⁷ but it was defined by the European legislator as “practices that materially distort or impair, either on purpose or in effect, the ability of recipients of the service to make autonomous and informed choices or decisions. Those practices can be used to persuade the recipients of the service to engage in unwanted behaviours or into undesired decisions which have negative consequences for them.”²⁸ We do not need to offer a fully-fledged, extensive definition of what a pattern is and what makes it dark in the digital environment. Less ambitiously, the purpose is simply to show that, given what is taken to be a dark pattern according to several specific studies on the matter, HEDPs are clearly dark patterns.

A recent report for the European Commission is an ideal starting point because it offers a classification built on an extensive literature review. According to Lupiáñez-Villanueva and coauthors, dark patterns increase the complexity of the choice architecture and either affect budget constraints or shape preferences.²⁹ Two points are worthy of emphasis here. First, the authors note that, in practice, dark patterns “are rarely presented in isolation”.³⁰ Consistent with this observation, a virtue of the concept of HEDPs is not putting emphasis on a single element (a single dark pattern) but on the pattern as a whole. As we shall argue,³¹ this is a reason why the DSA and AI Act anti-dark pattern provisions are not the best tools to combat HEDPs. Second, one should not infer too much from the authors’ reference to shaping preferences. In fact, when they elaborate on the point further, they observe that dark patterns influence “choices and behaviour” and “leverage biases . . . to influence behaviour”. Accordingly, the second effect of dark patterns is best expressed, consistent with our definition of HEDPs, as affecting or influencing behaviour.

This remark is worth making because it shows the great similarity between the concept of HEDPs and the broad category of dark patterns affecting or influencing behaviour. The

²⁵ Esposito, *supra*, note 22, 42–43. For the same reason, one can delegate to more case-orientated investigation the description of which features of a specific digital service make it a HEDP; Section II.1 includes a rich list of illustrative design features that deserve to be scrutinised during such case-specific investigations.

²⁶ As discussed by Alemanno and Sibony, *supra*, note 1, 18, nudges can be in the interest of the nudger or in the interest of third parties.

²⁷ Cf C Goanta and C Santos, “Dark Patterns Everything: An Update on a Regulatory Global Movement” (*Network Law Review*, 19 January 2023) <<https://www.networklawreview.org/digiconsumers-two/>> (last accessed 6 June 2023), noting that in the current debate we run the risk that everything is a dark pattern, so that ultimately nothing really is. See the useful case-by-case analysis in F Di Porto and A Egberts, “The Collective Welfare Dimension of Dark Patterns Regulation” (2023) 29 *European Law Journal* 114.

²⁸ Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market for Digital Services [2022] OJ L277/1 (DSA), Recital 67. See also Directive (EU) 2023/2673 of the European Parliament and of the Council of 22 November 2023 amending Directive 2011/83/EU as regards financial services contracts concluded at a distance and repealing Directive 2002/65/EC [2023] OJ L2023/2673, which includes a definition of dark patterns in Recital 42 and introduces the prohibition of their use in distance contracts in the Consumer Rights Directive (new Article 16e) but regrettably only for financial contracts, which are not HEDPs.

²⁹ Dark Patterns Study, *supra*, note 12, 35–39. From a comparative perspective, it is useful to consider also FTC, “Bringing Dark Patterns to Light” <www.ftc.gov/news-events/news/press-releases/2022/09/ftc-report-shows-rise-sophisticated-dark-patterns-designed-trick-trap-consumers> (last accessed 26 June 2023).

³⁰ Dark Patterns Study, *supra*, note 12, 39.

³¹ See *infra*, Section IV.

conceptual proximity is increased even further by noting that, in practice, dark patterns rely on big data analytics.³²

What is missing in the definition of hypernudge, but which permeates the whole literature on dark patterns, is that dark patterns are harmful to users.³³ In particular, the dark patterns that affect or influence behaviour are straightforwardly classified as manipulative. As the definition of a HEDP includes a harm element – namely, that users spend more time using a service than intended – they can be considered a dark pattern and, more precisely, a manipulative (and even addictive) one.

Having clarified the place of HEDPs in the broader conceptual landscape that they belong to, we can now substantiate this article's contribution: namely, that HEDPs violate the UCPD.

III. Hyper-engaging dark patters as an unfair commercial practice

The UCPD³⁴ regulates unfair commercial practices in business-to-consumer transactions within the EU, and the Court of Justice of the European Union (CJEU) has confirmed its applicability to online platforms.³⁵ This is not surprising considering the broad notion of “commercial practice” it relies upon. In a first approximation, the Directive protects consumers from stimuli coming from professionals that go beyond rational persuasion (as defined above).

More precisely, the UCPD comprises explicit outright prohibitions of practices that are deemed unfair under any circumstance (Annex I), as well as two levels of general prohibitions that require case-by-case analysis by national enforcement authorities.³⁶ A practice is unfair and therefore prohibited if it is listed in Annex I, is misleading or aggressive or falls under the more general clause. Except for Annex I, an unfair practice has to cause or be likely to cause consumers to make a transactional decision that they would not have made otherwise.³⁷

³² Dark Patterns Study, *supra*, note 12, 39. See also Commission Notice – Guidance on the Interpretation and Application of Directive 2005/29/EC of the European Parliament and of the Council Concerning Unfair Business-to-Consumer Commercial Practices in the Internal Market [2021] OJ C526/1, 100–01.

³³ See, generally, Susser et al, *supra*, note 20; Dark Patterns Study, *supra*, note 12; A Mathur, M Kshirsagar and J Mayer, “What Makes a Dark Pattern . . . Dark?: Design Attributes, Normative Considerations, and Measurement Methods” in *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems* (ACM 2021) <<https://dl.acm.org/doi/10.1145/3411764.3445610>> (last accessed 26 June 2023); J Luguri and LJ Strahilevitz, “Shining a Light on Dark Patterns” (2021) 13 *Journal of Legal Analysis* 43. Recently, Di Porto and Egberts (*supra*, note 27) have emphasised the collective harms caused by dark patterns. However, these collective harms are best understood as direct and indirect harms to consumers (users), similarly to what happens in EU competition law; the reason for this is that they have the effect of reducing the capacity of the market mechanism to work to the benefit of consumers; see F Esposito, *The Consumer Welfare Hypothesis in Law and Economics: Towards a Synthesis for the 21st Century* (Cheltenham, Edward Elgar 2022) especially pp 120–22 (on direct and indirect harm) and 176–80 (on the overall account of the internal market built around the goal of consumer welfare maximisation).

³⁴ Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005 concerning unfair business-to-consumer commercial practices in the internal market and amending Council Directive 84/450/EEC, Directives 97/7/EC, 98/27/EC and 2002/65/EC of the European Parliament and of the Council and Regulation (EC) No 2006/2004 of the European Parliament and of the Council [2005] OJ L149/22.

³⁵ C-146/16 *Verband Sozialer Wettbewerb eV v DHL Paket GmbH* [2017] ECLI:EU:C:2017:243.

³⁶ G Howells, T Wilhelmsson and C Twigg-Flesner, *Rethinking EU Consumer Law* (London, Routledge 2017) p 53.

³⁷ UCPD, Arts 5–8. “Transactional decision” means “any decision taken by a consumer concerning whether, how and on what terms to purchase, make payment in whole or in part for, retain or dispose of a product or to exercise a contractual right concerning the product, whether the consumer decides to act or to refrain from acting”. UCPD, Art 2(k). According to the CJEU, “transactional decision” means “any decision directly related to the decision whether or not to purchase a product”. See Case C-281/12 *Trento Sviluppo srl, Centrale Adriatica Soc. Coop. Arl v Autorità Garante della Concorrenza e del Mercato* [2013], paras 35, 36 and 38.

The UCPD is thus, *prima facie*, an instrument that could be used to put a stop to the use of the HEDPs that plague digital environments. Indeed, the 2021 UCPD Commission Notice mentions as potential unfair commercial practices those that are aimed at “capturing a consumer’s attention”, but it does not provide more detailed guidance, while the Dark Patterns Study opens its executive summary by putting a spotlight on HEDPs: “The digital environment contains an increasing number of effective artificial solicitations of consumers’ attention that influence them to take transactional decisions that may go against their best interests.”³⁸ Notably, the concept of HEDPs is more precise than those used in these documents. Our focus is not merely on capturing consumers’ attention, which has long been at the core of the content and advertising industries³⁹ and therefore cannot be considered unfair as such. Rather, it is on the use of techniques that make consumers spend more time on a platform by exploiting the dopamine cycle.

Our analysis moves from the following premise: as HEDPs are effective because of the dopamine cycle, it is apparent that the information regarding them should inform our understanding of the average consumer standard, not of the vulnerable one. In broader terms, the premise is an implication of the idea of pervasive digital asymmetry⁴⁰ in digital environments. From this premise, we derive the claim that the analysis of HEDPs and digital asymmetry should inform our understanding of both the average and vulnerable consumer standards.⁴¹

Building on this claim, Section III.1 applies the UCPD transactional decision test to HEDPs, Section III.2 argues that HEDPs should be considered an aggressive commercial practice and, in any event, their use should be prohibited by Article 5 UCPD.

I. Hyper-engaging dark patterns and the transactional decision test

Except for Annex I, for a practice to be deemed unfair it has to meet the conditions of the so-called transactional decision test: the practice has to cause or be likely to cause the average consumer to make a transactional decision that they would not have made otherwise.⁴² The CJEU ruled that the transactional decision concept is broad and “covers not only the decision whether or not to purchase a product but also the decision directly related to that decision”.⁴³ Accordingly, practices aimed at capturing the consumer’s attention are covered by the UCPD.⁴⁴ To apply the UCPD’s tests in detail to HEDPs, we consider an idealised HEDP with the features described in Section II.1.⁴⁵ We submit that

³⁸ Guidance on the Interpretation and Application of UCPD, *supra*, note 32; Dark Patterns Study, *supra*, note 12, 6.

³⁹ See, generally, T Wu, *The Attention Merchants: The Epic Scramble to Get Inside Our Heads* (New York, Knopf 2016).

⁴⁰ Digital asymmetry is characterised by relational, architectural and data-driven factors; see N Helberger et al, “Choice Architectures in the Digital Economy: Towards a New Understanding of Digital Vulnerability” (2022) 45 *Journal of Consumer Policy* 175.

⁴¹ See the discussion in F Esposito, “Theories of Harms, Digital Vulnerability and Structural Asymmetries: A Methodological Proposal with Three Illustrations for New Consumer Law Research” in A de Franceschi and C Crea (eds), *Digital Vulnerability in EU Private Law* (Baden-Baden, Nomos forthcoming); F Esposito and J Morais Carvalho, “The Hyper Dismal Reality and EU Law: Structural Asymmetry Is a Matter of Weakness, Not Just Consumer Vulnerability” (on file with the authors). However, we derive this claim by analogy with similar considerations previously articulated by A-L Sibony, “Can EU Consumer Law Benefit from Behavioural Insights? An Analysis of the Unfair Practices Directive” (2014) 22 *European Review of Private Law* 901; Esposito, *supra*, note 22, 66–73. See also J Morais Carvalho and S Fernandes Garcia, “Vulnerabilidad y Consumo: ¿Tiene Sentido una Distinción entre Consumidores Vulnerables y No Vulnerables?” in E Isler Soto and D Jarufe Contreras (eds), *Vulnerabilidad y Capacidad – Estudios sobre Vulnerabilidad y Capacidad Jurídica en el Derecho Común y de Consumo* (Santiago, Rubicón Editores 2022).

⁴² UCPD, Arts 2(e) and 5.

⁴³ C-281/12 *Trento Sviluppo srl*, *supra*, note 36, para 36.

⁴⁴ Dark Patterns Study, *supra*, note 12, 70.

⁴⁵ All HEDPs have the same purpose and follow the same logic, but the way each platform applies them varies.

case-specific consideration would of course be necessary to single out specific platforms, but an abstract analysis is sufficient to demonstrate the applicability of the UCPD to HEDPs.

Practical considerations also support this position at this time. Digital asymmetry and HEDPs' characteristics create obstacles to empirically demonstrating the extent to which these patterns impact users' behaviour.⁴⁶ So the focus here is on how HEDPs interact with users' brains according to the specialised literature and empirical studies on other forms of online manipulation. As discussed previously, the literature shows that HEDPs exploit users' cognitive weaknesses, eroding their self-control and making them act automatically and irrationally, with the aim of generating engagement.⁴⁷ Accordingly, HEDPs manipulate users to take decisions that (financially) benefit the platform. Even worse, HEDPs are often organic and make users' behaviour appear to be an exercise of free will (even to the users themselves).⁴⁸

In other words, it is plausible to conclude that HEDPs cause or are likely to cause the average consumer to make a transactional decision that they would not have made otherwise. In fact, all humans, even the average consumer, have cognitive weaknesses that can be exploited through manipulation; it follows that HEDPs are likely to significantly impair any user's ability to make a rational decision, thereby causing them to make a transactional decision that they would not have made otherwise (eg using a platform frequently and for longer periods). Notably, HEDPs and their components are celebrated in best-selling marketing books such as *Hooked*,⁴⁹ *The Choice Factory*⁵⁰ and *The Buying Brain*,⁵¹ amongst others.

Against this background, we submit that the public understanding of HEDPs is clear and convincing enough to warrant the conclusion that HEDPs are likely to materially distort the average consumer's decisions. This is especially the case as it is well known that the likelihood standards applied in relation to effects in EU law are quite lax.⁵² At the same time, we welcome the proposal to shift the burden of proof in the digital environment,⁵³ even if in this context this is currently precluded by the CJEU's case law.⁵⁴

An important question for future investigation is how to relate the concepts of "likelihood" and "material distortion" (but also that of "significant impairment" used to define aggressive practices) to the relevant empirical research. For example, in a recent umbrella review of the literature on the impacts of social media use on adolescent mental health, the authors found that "the majority of the reviews concluded that the reported associations of [social media use] with mental health were small to moderate", but "some others interpreted these associations as serious, substantial or detrimental",⁵⁵ whilst at the same time person-specific approaches "found that a small group of adolescents experienced negative effects of SMU [social media use] on wellbeing (around 10%–15%) and another small group experienced positive effects (also around 10%–15%). Reassuringly though, most adolescents experienced no or negligible effects."⁵⁶

⁴⁶ Dark Patterns Study, *supra*, note 12, 92–93.

⁴⁷ See *supra*, Section II.2.

⁴⁸ Day and Stemler, *supra*, note 3, 4.

⁴⁹ Eyal, *supra*, note 10.

⁵⁰ R Shotton, *The Choice Factory: 25 Behavioural Biases That Influence What We Buy* (Petersfield, Harriman House 2018).

⁵¹ AK Pradeep, *The Buying Brain: Secrets for Selling to the Subconscious Mind* (Hoboken, NJ, Wiley 2021).

⁵² S Weatherill, *The Internal Market as a Legal Concept* (Oxford, Oxford University Press 2017).

⁵³ N Helberger et al, *EU CONSUMER PROTECTION 2.0 Structural Asymmetries in Digital Consumer Markets* (BEUC 2021).

⁵⁴ C-295/16 *Europamur Alimentación SA v Dirección General de Comercio y Protección del Consumidor de la Comunidad Autónoma de la Región de Murcia* [2017] ECLI:EU:C:2017:782, para 42.

⁵⁵ Valkenburg et al, *supra*, note 22, 60.

⁵⁶ *ibid.*, 66.

Under which conditions can we confidently claim that these findings allow us to conclude that the decision of the average social media user is likely to be materially distorted or satisfy any of the other tests needed to apply the UCPD? The truth is that we lack specific guidance on how to perform this act of epistemic translation⁵⁷ from this and similar bodies of knowledge to legal practice. Until a more integrationist approach⁵⁸ to the study of these issues prevails, fundamental questions about the legal relevance of empirical studies will remain. This problem is not limited to but is well illustrated by the present topic.⁵⁹

After submitting HEDPs to the transactional test, the next step is to analyse whether they meet the requirements of the specific and/or general prohibitions.

2. Hyper-engaging dark patterns as aggressive commercial practices

This section first shows the difficulties in qualifying HEDPs as misleading practices, and it then shows that they can be convincingly considered aggressive practices as they exercise undue influence on their targets.

Misleading practices refer to those that fail to provide material information to consumers clearly and truthfully, distorting or being likely to distort their transactional decisions.⁶⁰ At first glance, it may appear that HEDPs constitute a misleading practice. Nevertheless, applying Articles 6 and 7 UCPD to HEDPs implies that the average consumer would make a different choice if they were properly informed about these patterns, which is not the case. HEDPs cannot be overcome by providing information because information can neither remedy digital asymmetry nor protect users' brains from manipulation.⁶¹ What distorts user behaviour in this case is the manipulative practice itself, not the lack of or the deceptive information about it⁶² hence, the legal answer must tackle the structural side – the digital architecture – by means other than information.⁶³ In other words, HEDPs pose a more radical threat to consumers than mere misleading practices.

It is within Articles 8 and 9 UCPD, establishing the prohibition of aggressive practices, that HEDPs are best placed. A commercial practice is aggressive if: it involves harassment and/or coercion and/or undue influence; it significantly impairs or is likely to significantly impair the average consumer's freedom of choice; and it causes or is likely to cause the average consumer to make a transactional decision that they would not have made otherwise. The factual context of a practice has to be considered when assessing it.⁶⁴ The UCPD only defines "undue influence", which requires the trader to be in a position of power over the consumer; the trader exploits such a position to put pressure on the consumer; and that this significantly limits⁶⁵ the consumer's ability to make an informed decision.⁶⁶

⁵⁷ L Hongjun, "On Theoretical and Methodological Value of Epistemic Translation Studies" (2022) 22 *Contemporary Foreign Languages Studies* 34. See also F Esposito, "Some Notes on Interdisciplinary Theoretical Disagreements between Law and Economics" (2021) 7 *Latin America Legal Studies* 55.

⁵⁸ T van Leeuwen, "Three models of interdisciplinarity" in R Wodak and P Chilton (eds), *A New Agenda in (critical) Discourse Analysis: Theory, Methodology and Interdisciplinarity* (Amsterdam, John Benjamins 2005) pp 3–18.

⁵⁹ On the difficult relation between scientific inquiry and legal practice, see, generally, S Haack, *Evidence Matters: Science, Proof, and Truth in the Law* (Cambridge, Cambridge University Press 2014).

⁶⁰ Arts 6 and 7 UCPD; Howells et al, *supra*, note 36, 63–65.

⁶¹ Dark Patterns Study, *supra*, note 12, 120–23.

⁶² E Mik, "The Erosion of Autonomy in Online Consumer Transactions" (2016) 8 *Law, Innovation and Technology* 1, 32.

⁶³ Helberger et al, *supra*, note 53, 51.

⁶⁴ UCPD, Art 8.

⁶⁵ Art 2(j) UCPD describes undue influence, saying that it "significantly limits the ability" instead of "it is likely to significantly limit". Considering the writing of Art 8 and the UCPD's framework, it seems reasonable to consider that likelihood is sufficient for all sorts of aggressive practices. See Helberger et al, *supra*, note 40, 70.

⁶⁶ UCPD, Art 2(j).

Article 9 UCPD provides a list of factors to be considered in determining whether harassment, coercion or undue influence has occurred.⁶⁷ Some scholars question whether Article 9 provides an exhaustive list so that courts are precluded from considering additional factors, and whether a practice can only be deemed aggressive if all factors listed in Article 9 are considered.⁶⁸ On this issue, it is noteworthy that the CJEU took into consideration one aspect not listed in Article 9, namely “conduct that makes that consumer feel uncomfortable or confuses his thinking”,⁶⁹ and it did not analyse all of the factors listed in Article 9 to judge whether the practice was unfair. Therefore, Article 9 should be interpreted as a non-exhaustive list of aspects to be considered when analysing a practice.

Another discussion regarding Article 9(c) is whether this provision requires the trader to be aware of and to exploit the consumer’s situation, implying that the trader has to intentionally exploit consumers’ vulnerability for a practice to be deemed undue influence.⁷⁰

This position is not convincing as a matter of legal analysis. In fact, nothing in the wording of the Directive refers to the trader’s mental states. The blacklisted practices are always prohibited. At the same time, pursuant to Article 2(a), all that is required regarding the trader is that the practice is against the requirements of professional diligence; but this is also an objective standard, which concerns what professional diligence requires, not the trader’s intention or awareness.⁷¹ Also in Articles 6–9 UCPD the focus is on the practice and its effects, not the trader’s mental state. Accordingly, giving relevance to the trader’s mental state would reduce the effectiveness of the UCPD, and it is therefore incompatible with EU law and, in particular, Article 169 TFEU and Article 47 of the EU Charter of Fundamental Rights.⁷²

A survey of the CJEU case law confirms this conclusion. The *Purely Creative*,⁷³ *Wind Tre*⁷⁴ and *Orange Polska*⁷⁵ cases contain important information on aggressive practices, particularly those involving undue influence. In each case, the Court did not analyse or require information on the trader’s intention or awareness. For example, in the *Orange Polska* ruling, the CJEU held that it “constitutes an aggressive commercial practice through the exertion of undue influence where the trader or its courier adopt unfair conduct, the effect of which is to put pressure on the consumer such that his freedom of choice is significantly impaired, such as conduct that makes that consumer feel uncomfortable or confuses his thinking concerning the transactional decision to be taken”.⁷⁶ This makes it clear that what matters is the potential effect of the trader’s conduct rather than whether it is intended or conscious.

Additionally, Hacker argues that manipulative practices represent a form of deception that does not establish the pressure required for a practice to be considered an undue influence, meaning that “influence must be exerted in a way consciously perceived by the

⁶⁷ UCPD, Art 9.

⁶⁸ Howells et al, *supra*, note 36, 66.

⁶⁹ Helberger et al, *supra*, note 53, 68.

⁷⁰ P Hacker, “Manipulation by Algorithms. Exploring the Triangle of Unfair Commercial Practice, Data Protection, and Privacy Law” (2021) 29(1–2) *European Law Journal* 142.

⁷¹ See *infra*, Section III.3, for more detail.

⁷² See, recently, M Grochowski and M Taborowski, “Effectiveness and EU Consumer Law: The Blurriness in Judicial Dialogue” in F Casarosa and M Moraru (eds), *The Practice of Judicial Interaction in the Field of Fundamental Rights* (Cheltenham, Edward Elgar 2022).

⁷³ C-428/11 *Purely Creative Ltd and Others v Office of Fair Trading* [2012] ECLI:EU:C:2012:651, para 49.

⁷⁴ C-54/17 *Autorità Garante della Concorrenza e del Mercato v Wind Tre SpA and Vodafone Italia SpA* [2018] ECLI:EU:C:2018:710.

⁷⁵ C-628/17 *Prezes Urzędu Ochrony Konkurencji i Konsumentów v Orange Polska* [2019] ECLI:EU:C:2019:480.

⁷⁶ *Orange Polska*, *supra*, note 77, paras 49 and 50.

consumer – one cannot be pressured without noticing it”.⁷⁷ This claim is admittedly convincing at first glance, but a closer look suggests that it can be overcome. The claim puts a strong emphasis on the consumer’s cognition of this pressure. However, part of the social sciences literature studying these topics uses the term “pressure” in a broad sense, covering any manipulative practice⁷⁸; accordingly, different literal meanings (the plain one and the technical one) point the interpreter in different directions.

Furthermore, even if we accept that pressure must be perceived, perhaps perceiving it during the “treatment” sets the bar too high. In fact, one could perceive the pressure without perceiving being pressured.⁷⁹ An example is limited-availability offers: the consumer notices the pressure but is unaware of the fact that the pressure takes advantage of the scarcity effect⁸⁰ and is therefore manipulative. But there are cases in which this construction is harder to apply but still the practice exercises undue influence. For example, designing interfaces so that the designer’s preferred option is more salient directs the consumer’s attention. In this case, one could perhaps argue that the consumer is being stirred, pushed or nudged, and to stir, push or nudge someone requires the exercise of some pressure, even when it falls below a threshold of conscious recognition.⁸¹

Looking at the term “pressure” in context supports the present approach. The definition in Article 2(j) UCPD refers to “pressure, even without using or threatening to use physical force, in a way which significantly limits the consumer’s ability to make an informed decision”. The fragment “even without using or threatening to use physical force” suggests that the legislator aimed at introducing a broad concept of “undue influence”. Moreover, the UCPD is celebrated for its ability to be “future-proof”.⁸² The implication is clear: the meaning of its provisions is expected to be malleable enough to cover practices that were not on the legislator’s radar when the UCPD was enacted. HEDPs, and subliminal stimuli more generally,⁸³ obviously fall within this category. This is another reason for not taking the plain meaning of “pressure” too seriously.

Additionally, a teleological interpretation of the concept of undue influence that covers HEDPs is most likely going to be acceptable under current interpretative CJEU practice. It is often the case that, between two interpretive alternatives, the CJEU chooses the one that leads to a higher level of consumer protection – a position also justified by way of reference to Article 47 of the EU Charter of Fundamental Rights.⁸⁴

Our proposed interpretation is also supported by the UCPD Guidelines, the Dark Patterns Study and by the majority of the legal literature.⁸⁵ The UCPD Guidelines and the Dark Pattern Study clearly associate undue influence with manipulation,⁸⁶ and it is widely agreed in the literature that manipulation perverts the target’s decisional process.⁸⁷ This is

⁷⁷ Hacker, *supra*, note 70, 10–11.

⁷⁸ See, eg, K Bongard-Blanchy et al, “‘I Am Definitely Manipulated, Even When I Am Aware of It. It’s Ridiculous!’ – Dark Patterns from the End-User Perspective”, Designing Interactive Systems Conference 2021 (Association for Computing Machinery 2021) <<https://dl.acm.org/doi/10.1145/3461778.3462086>> (last accessed 26 June 2023).

⁷⁹ Cf R Uuk, *Manipulation and the AI Act* (Future of Life 2022) <https://futureoflife.org/wp-content/uploads/2022/08/FLI-Manipulation_AI_Act.pdf> (last accessed 6 June 2023), 2.

⁸⁰ Cf P Aggarwal, S Jun and J Huh, “Scarcity Messages: A Consumer Competition Perspective” (2011) 40 *Journal of Advertising* 19.

⁸¹ In relation to nudges, see, in particular, R Baldwin, “From Regulation to Behaviour Change: Giving Nudge the Third Degree” (2014) 77 *The Modern Law Review* 831.

⁸² Eg Guidance on the Interpretation and Application of UCPD, *supra*, note 32, 37.

⁸³ On the notion of subliminal stimulus, see A Sand and ME Nilsson, “Subliminal or Not? Comparing Null-Hypothesis and Bayesian Methods for Testing Subliminal Priming” (2016) 44 *Consciousness and Cognition* 29.

⁸⁴ See, recently, Grochowski and Taborowski, *supra*, note 72.

⁸⁵ See, extensively, F Galli, *Algorithmic Marketing and EU Law on Unfair Commercial Practices* (Berlin, Springer 2022).

⁸⁶ Guidance on the Interpretation and Application of UCPD, *supra*, note 32, 100–104; Dark Patterns Study, *supra*, note 12, 122.

⁸⁷ See, generally, Jongepier and Klenk, *supra*, note 20.

exactly the outcome that Article 2(j) UCPD associates with undue influence: “significantly limit[ing] the consumer’s ability to make an informed decision”. A systematic argument confirms the appropriateness of “smoothing” the obstacle represented by the use of the term “pressure” in Article 2(j) UCPD. Article 13(6) Digital Markets Acts prohibits gatekeepers from making the exercise of the rights or choices pursuant to Articles 5–7 thereof “unduly difficult, including by offering choices to the end-user in a non-neutral manner, or by subverting end users’ or business users’ autonomy, decision-making, or free choice via the structure, design, function or manner of operation of a user interface or a part thereof”. Even more explicitly, Article 25(1) Digital Services Act establishes that “providers of online platforms shall not design, organise or operate their online interfaces in a way that deceives or manipulates the recipients of their service or in a way that otherwise materially distorts or impairs the ability of the recipients of their service to make free and informed decisions”. Both provisions, like Article 2(j) UCPD, are concerned with protecting consumers’ decision-making processes from being perverted. In particular, Article 25(1) DSA closely matches the wording of the UCPD.⁸⁸ Accordingly, once placed in its (new) legislative context, the concept of undue influence should not be constructed by drawing important implications from the plain meaning of the term “pressure”.

In sum, HEDPs harm users’ autonomy and are likely to significantly impair the average consumer’s freedom of choice and conduct regarding the decision on how often and for how long to use an online platform. Therefore, HEDPs should be considered as a way to exercise undue influence when integrating the requirements set by Articles 8 and 9 UCPD and should therefore be prohibited.

3. Hyper-engaging dark patterns and the Unfair Commercial Practices Directive general clause

For the sake of completeness, we look at HEDPs through the lens of Article 5(2) UCPD, providing a general prohibition, the function of which is to catch unfair commercial practices that were caught neither by Articles 6–9 nor by Annex I.⁸⁹ Article 5(2) establishes that a commercial practice is unfair if it is contrary to the requirements of professional diligence and materially distorts or is likely to materially distort the economic behaviour of the average consumer.⁹⁰

Although HEDPs are widespread, they do not comply with the honesty or good-faith requirements due to their manipulative rationale and consequences.⁹¹ Although it is challenging to establish what consumers expect from online platforms, it is reasonable to say that people expect their autonomy to be respected, and such a right must override the trader’s financial interests. Therefore, when a trader deploys HEDPs, thereby harming users’ autonomy, they fail to act as required by professional diligence.⁹²

Article 5(2) UCPD introduces the transactional decision test.⁹³ The impacts of HEDPs on consumers’ behaviour and transactional decisions have already been discussed.⁹⁴ HEDPs exploit users’ cognitive weaknesses and are likely to materially distort (and shape) users’ behaviour. As has been seen, these effects could potentially affect anyone. Therefore, such patterns are likely to impair the average consumer’s ability to make an

⁸⁸ See *infra*, Section IV, for more detail.

⁸⁹ Howells, et al, *supra*, note 36, 58.

⁹⁰ UCPD, Art 5(2).

⁹¹ UCPD, Art 2(h).

⁹² J Trzaskowski, “Data-Driven Value Extraction and Human Well-Being under EU Law” (2022) 32 *Electronic Markets* 447.

⁹³ UCPD, Art 2(e).

⁹⁴ See *supra*, Section II.1.

informed and rational decision. In addition, as discussed earlier, they are likely to cause such consumers to make a transactional decision that they would not have made otherwise.

Accordingly, even if deploying HEDPs is not considered an aggressive practice, it should be deemed an unfair practice under Article 5(2) UCPD because it is contrary to the required professional diligence and is likely to distort the average consumer's economic behaviour, negatively affecting their transactional decisions.

In conclusion, the UCPD is sufficiently goal-orientated and flexible to ban HEDPs.⁹⁵ Although these practices did not exist when the Directive was elaborated, this work advocates that the UCPD's principle-based provisions⁹⁶ can be interpreted as prohibiting HEDPs. Hence, this leads to the conclusion that deploying HEDPs constitutes an unfair practice under Articles 8 and 9 UCPD or Article 5(2) UCPD subsidiarily.

IV. The Digital Services Act and the Artificial Intelligence Act as complements

The DSA entered into force on 16 November 2022 and became applicable on 17 February 2024.⁹⁷

According to Article 25(1) DSA, online platforms shall not design their interfaces in a way that deceives, manipulates or otherwise materially distorts or impairs the ability of users to make free and informed decisions.⁹⁸ Recital 67 focuses on dark patterns and states that service providers should be prohibited from deceiving, nudging, distorting or impairing users' autonomy, decision-making or choices through interface design.⁹⁹

Although these provisions appear to ban online manipulation, Article 25(2) DSA exempts practices covered by the UCPD from such prohibition.¹⁰⁰ Accordingly, this provision does not contribute to the goal of protecting consumers from HEDPs because, as discussed in Section III, the UCPD certainly covers them. This approach seems inadequate, as applying both legislations would increase the level of consumer protection, and the EU legal system often chooses legislative cumulation, such as between consumer and data protection,¹⁰¹ between horizontal instruments of consumer protection, between horizontal and sectorial instruments (in the absence of a specific exclusion) and between competition law and sectorial legislation.

It is perhaps the innovative regulatory solution introduced by Articles 33 and following DSA for very large platforms that could have a transformative effect. Indeed, the list of

⁹⁵ Dark Patterns Study, *supra*, note 12, 72.

⁹⁶ Guidance on the Interpretation and Application of UCPD, *supra*, note 32, 99.

⁹⁷ DSA, Art 93.

⁹⁸ This article does not apply to providers of online platforms that qualify as micro or small enterprises within the meaning of the Annex to Recommendation 2003/361/EC. See DSA, Art 29(1).

⁹⁹ *ibid.*

¹⁰⁰ There seems to be no doubt in the literature that the term "cover" leads to the inapplicability of Art 25 DSA as soon as the practice falls within the scope of either the UCPD or the General Data Protection Regulation (GDPR). See, eg, J King, "Do the DSA and DMA Have What It Takes to Take on Dark Patterns?" (*Tech Policy Press*, 23 June 2022) <<https://techpolicy.press/do-the-dsa-and-dma-have-what-it-takes-to-take-on-dark-patterns/>> (last accessed 6 June 2023); MR Leiser, "Dark Patterns: The Case for Regulatory Pluralism between the European Union's Consumer and Data Protection Regimes" in E Kosta, R Leenes and I Kamara (eds), *Research Handbook on EU Data Protection Law* (Cheltenham, Edward Elgar 2022); M Martini and C Drews, "Making Choice Meaningful – Tackling Dark Patterns in Cookie and Consent Banners through European Data Privacy Law" (2022) SSRN Electronic Journal <<https://www.ssrn.com/abstract=4257979>> (last accessed 6 June 2023).

¹⁰¹ C-319/20 *Meta Platforms Ireland v Bundesverband der Verbraucherzentralen und Verbraucherverbände - Verbraucherzentrale Bundesverband e.V.* [2022] ECLI:EU:C:2022:322.

very large online platforms¹⁰² includes many services with business models that seem to rely on HEDPs, namely Facebook, Instagram, LinkedIn, Snapchat, TikTok, Twitter and YouTube. Article 34(1) DSA requires providers of very large platforms to conduct annual risk assessments to identify any systemic risks arising from the design or functioning of their services or from the use made of their services.¹⁰³ These assessments must consider any potential negative impacts on fundamental rights and consumer protection, and platforms shall put in place effective mitigation measures tailored to the specific risks identified pursuant to the risk assessment.¹⁰⁴

Recital 83 DSA specifically includes HEDPs in the risk assessment procedure. It states that, amongst the categories of risks that should be assessed in depth, there are those risks related to “the design, functioning or use, including through manipulation, of very large platforms with potential negative effects on public health, minors and users’ physical and mental well-being” that can arise from online interface designs that may stimulate behavioural addictions.¹⁰⁵

Once a risk has been identified, Article 35 requires providers to implement “reasonable, proportionate and effective mitigation measures”, which “may include . . . adapting the design”.¹⁰⁶

Therefore, by the letter of the law, the DSA does not directly prohibit the deployment of HEDPs by online platforms in consumer markets as the UCPD covers these. Nevertheless, Articles 34 and 35 DSA oblige platforms to evaluate and mitigate the risks posed by the HEDPs embedded in their services. Coupled with the creation of a complex institutional system centred around the Digital Services Coordinator – with autonomous investigating powers complemented by the stakeholder intervention pursuant to Article 40 DSA – and direct sanction powers, the DSA might actually offer an important complement to the UCPD.¹⁰⁷ Perhaps surprisingly, however, this aid does not come from the “anti-dark pattern” provision, namely Article 25(1) DSA.

Another legislative instrument that could address technological advancements and potentially protect users from HEDPs is the AI Act, which is currently in the proposal stage. The current version of the Regulation addresses online manipulation, where such manipulation involves an AI system that is likely to cause psychological or physical harm.¹⁰⁸ Although the AI Act does not cover all aspects of HEDPs, machine learning – which is an AI system – is a core part of HEDPs, and therefore this Regulation could be a valuable tool in combatting them. In addition, the AI Act’s prohibitions complement those of the UCPD, enhancing its potential to ban manipulative practices.¹⁰⁹

The AI Act adopts a risk-based approach, categorising risks as unacceptable, high, limited and minimal or no risk. Amongst the unacceptable risks, Article 5(1)(a) prohibits the deployment of AI systems that employ subliminal techniques with the objective to or the effect of materially distorting a person’s behaviour, thereby causing or being

¹⁰² J Bahrke, “Digital Services Act: Commission Designates First Set of Very Large Online Platforms and Search Engines” (2023) <https://ec.europa.eu/commission/presscorner/detail/en/IP_23_2413> (last accessed 26 June 2023).

¹⁰³ DSA, Art 34(1).

¹⁰⁴ DSA, Arts 34(1)(b) and 35(1).

¹⁰⁵ DSA, Recital 83.

¹⁰⁶ DSA, Arts 35(1) and 35(1)(a).

¹⁰⁷ See, generally, M Husovec and I Roche Laguna, “Digital Services Act: A Short Primer” (2022) SSRN Electronic Journal <<https://www.ssrn.com/abstract=4153796>> (last accessed 6 June 2023); SF Schwemer, “Digital Services Act: A Reform of the e-Commerce Directive and Much More” in A Savin (ed.), *Research Handbook on EU Internet Law* (Cheltenham, Edward Elgar 2022).

¹⁰⁸ Commission, “Proposal for a Regulation of the European Parliament and of the Council Laying Down Harmonised Rules on Artificial Intelligence and Amending Certain Union Legislative Acts” (“AI Act”), COM (2021) 206 final, Art 5(1).

¹⁰⁹ AI Act, Recital 16.

reasonably likely to cause physical or psychological harm.¹¹⁰ Recital 16 of the AI Act highlights that the use of AI is particularly dangerous and should be forbidden when it is used to manipulate or deceive individuals, impairing their autonomy, decision-making and freedom of choice, whereby physical or psychological harms are likely to occur.

HEDPs typically involve AI systems that manipulate users by obscurely exploiting their cognitive vulnerabilities (in particular, the dopamine cycle),¹¹¹ leading to distorted behaviours and increased platform usage, which can result in physical and psychological harm over the long term.¹¹² Therefore, Article 5(1)(a) and Recital 16 of the current version of the AI Act could be used to prohibit the deployment of AI systems as HEDPs or components thereof.¹¹³ However, one might still wonder whether HEDPs will be considered to “manipulate [users] through subliminal techniques beyond their consciousness”.¹¹⁴

In conclusion, the DSA and the proposed AI Act demonstrate that the EU legislator is thoughtful on practices that manipulate users, harming their autonomy and well-being. Although there may be practical challenges when applying the DSA or the AI Act to HEDPs, the text of these legal instruments puts these practices under the spotlight. Accordingly, even if the DSA and the AI Act might not prohibit the use HEDPs in consumer transactions, at the very least they offer systematic support to the claim that the UCPD not only covers but also prohibits HEDPs.

V. Conclusion: the time to take seriously hyper-engaging dark patterns has come

This article has placed emphasis on a common feature of content-sharing platforms: the HEDPs. It has explained what they are, why they are so effective and harmful and how they relate to the more popular expressions of “nudge”, “hypernudge” and “dark pattern”.

At the core of our analysis lies the finding that HEDPs are effective because they exploit the human brain’s physiology, particularly the dopamine cycle. Accordingly, HEDPs rely upon a basic mechanism of humankind. The general legal implication is that considerations about HEDPs and the digital asymmetry that they generate should inform our understanding of what the law needs to do for all consumers, be they average or vulnerable.

In the context of the UCPD, the main obstacle to finding that HEDPs are likely to be aggressive commercial practices is a restrictive interpretation of the concept of undue influence based on a narrow understanding of what “pressure” means. This article has resisted that interpretation through a variety of considerations of a literal, teleological, contextual and systematic nature. In any event, the analysis would still lead to similar conclusions under the general unfairness test under Article 5(2) UCPD.

¹¹⁰ AI Act, Art 5(1)(a).

¹¹¹ See supra, Section II.1.

¹¹² See supra, Section II.2.

¹¹³ Cf RJ Nuewirth, *The EU Artificial Intelligence Act. Regulating Subliminal AI Systems* (London, Routledge 2023), reviewed by Y Doker and HD Seval, “The EU Artificial Intelligence Act: Regulating Subliminal AI Systems (Routledge Research in the Law of Emerging Technologies) by Rostam J. Neuwirth – The Digital Constitutionalist” (9 December 2022) <<https://digi-con.org/the-eu-artificial-intelligence-act-regulating-subliminal-ai-systems-routledge-research-in-the-law-of-emerging-technologies-by-rostam-j-neuwirth/>> (last accessed 6 June 2023); see also M Franklin et al, “Missing Mechanisms of Manipulation in the EU AI Act” (2022) 35 *The International FLAIRS Conference Proceedings* <<https://journals.flvc.org/FLAIRS/article/view/130723>> (last accessed 7 June 2023).

¹¹⁴ Cf P Grady, “EU’s AI Act Resurrects Subliminal Messaging Panic” (*Center for Data Innovation*, 21 October 2022) <<https://datainnovation.org/2022/10/eus-ai-act-resurrects-subliminal-messaging-panic/>> (last accessed 6 June 2023); Uuk, supra, note 79.

This article then broadened the perspective to consider developments in the DSA and possibly in the AI Act. It was shown that the DSA offers and the AI Act may offer additional tools to combat HEDPs. However, these tools are complementary to those of the UCPD, which remains at the core of the regulatory framework.

As noted, a crucial question that has failed to prompt an adequate level of discussion relates to the conditions that empirical evidence needs to satisfy in order to justify the claim that HEDPs (and any other commercial practice that is not blacklisted) are “likely” to “materially distort” or “significantly impair” a consumer’s behaviour.

Hopefully, the analysis developed in this article will help stakeholders and enforcement bodies to exercise pressure on digital service providers so that consumers’ autonomy, freedom and self-sovereignty will be respected by the design of their services. The European Commission intends to publish the results of its fitness check in the second quarter of 2024, and hopefully it will then announce measures meant to increase the legal certainty concerning the status of HEDPs.

From this point of view, it is certainly positive that, on 12 December 2023, whilst this article was completing its review cycle, the European Parliament voted for a resolution declaring, fully in line with the position articulated above, it to be “alarmed that certain platforms and other tech companies exploit psychological vulnerabilities to design digital interfaces for commercial interests that maximise the frequency and duration of user visits, so as to prolong the use of online services and to create engagement with the platform; stress[ing] that addictive design can cause harm to physical and psychological health as well as material harm to consumers”.¹¹⁵

On these grounds, the European Parliament has asked the Commission to bring more clarity on the legal limits of addictive design, singling out some of HEDPs’ core elements, namely infinite scroll, autoplay and push notifications, whilst “recall[ing] that several dark patterns and manipulative practices could already be prohibited under the list of misleading commercial practices in Annex I of the UCPD; not[ing], moreover, that the principle-based Articles 5 to 9 of the UCPD concerning professional diligence, misleading omissions and actions, and aggressive practices provide a basis for assessing the fairness of most business-to-consumer practices”.¹¹⁶

The time to stand and stare¹¹⁷ has passed; this is the time to act.

Acknowledgments. Thaís Maciel Cathoud Ferreira wishes to thank WhatNext.Law for a research grant, and both authors thank Artemisa Rocha Does for her input on the literature on the problematic usage of the Internet at the early stages of this research.

Competing interests. The authors declare none.

¹¹⁵ European Parliament resolution of 12 December 2023 on addictive design of online services and consumer protection in the EU single market (P9_TA(2023)0459), para 3. The resolution is based on the following report: K Van Sparrentak (Rapporteur) for the Committee on the Internal Market and Consumer Protection, “Report on addictive design of online services and consumer protection in the EU single market” (2023/2043(INI)).

¹¹⁶ European Parliament resolution of 12 December 2023, *supra*, note 116, para 6.

¹¹⁷ R Brownsword, “The Theoretical Foundations of European Private Law: A Time to Stand and Stare” in R Brownsword, H-W Micklitz, L Niglia and S Weatherill (eds), *The Foundations of European Private Law* (Oxford, Hart Publishing 2011).