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Social media and mental harms under the Digital Services Act

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Abstract: Numerous empirical studies indicate that social media use is correlated with, and sometimes might be causing, mental harms like addiction, anxiety and depression, or lowering of cognitive abilities. In 2023, the European Parliament called on the European Commission to introduce new rules to combat these problems. However, it might take years before such new laws are adopted and become applicable. In this article, we demonstrate how a law already in effect – the Digital Services Act – offers the Commission tools necessary to combat certain mental harms stemming from social media’s design and functioning within the ad-based business model. We show that the risk assessment and mitigation obligations addressed at the Very Large Online Platforms’ providers include three “mental goods:” the mental well-being of individuals, mental health (as a component of public health), and the fundamental right to mental integrity. This article offers elaboration and theorisation of these concepts to enable more effective application of the DSA’s requirements, both by providers engaging in risk assessment and the Commission serving as the enforcer.

1. Introduction

For several years now, scholars and policymakers have been sounding the alarm about the potential links between using social media and various types of mental harms (Bhargava & Velasquez, 2021; Hunt et al., 2018; Surgeon General, 2023). Commentators invoke them under the labels of addiction (Bernstein, 2023; Rosenquist et al., 2022), attention depletion (Newman, 2020; Wu, 2019), or mental health issues (Haidt, 2024), often as umbrella terms for wider problems they intuit. Indeed, empirical data suggests that some people are addicted to social media or spend more time on them than they wish (ThinkNow, 2019; Vogels et al., 2022), that social media use is correlated with a lowering of various cognitive capacities (Chiossi et al., 2023, Sharifian & Zahodne, 2020), and it is linked to a higher chance of suffering from mental disorders like depression or anxiety (Keles et al., 2020). Some studies have also provided evidence supporting the claim that there is a causal link between stopping social media use and improved psychological well-being (Hunt et al., 2018; Lambert et al., 2022). In 2023, the European Parliament called on the European Commission to introduce new rules for combating social media addiction and related mental health problems (EP, 2023).

This article, resulting from a collaboration of a lawyer and a psychologist, argues that the recently applicable Digital Services Act (the “DSA”) already offers the European Commission tools to combat many mental harms associated with social media use. We demonstrate how the risk assessment and mitigation obligations (DSA, art. 34-35) addressed at the providers of Very Large Online Platforms (VLOPs) cover mental harms. We do so by pointing out the three “mental goods” protected by art. 34, namely, the mental well-being of individuals, public mental health, and the fundamental right to mental integrity (one of the fundamental rights protected by the Charter). We elaborate on the possible meanings of these concepts, drawing from both legal and empirical literature. Our aim is to assist the VLOPs’ providers and researchers in risk assessment, as well as the independent auditors and enforcers (the European Commission) in oversight and enforcement. This theorisation and operationalisation of the three mental goods protected by the DSA constitutes the primary contribution of this article.

We further argue that to effectively use the tools that the DSA makes available, one first needs to understand exactly how and why social media, as they are today, threaten these mental goods. Our claim is that the risk of various mental harms is inherent in the ad-driven business model that most social media providers rely on (the so-called “attention economy”). It is in the direct interest of social media providers for users to spend as much time as possible using their products, devel-

op habits, and generally find themselves in mental states making one more receptive to advertising (like experiencing specific emotions). In this sense, the interests of users and providers diverge due to the specific business model adopted. Hence, even though we note that mental harms associated with social media use might stem from two primary sources: the behaviour of other users (sharing drastic content, engaging in cyberbullying, spreading misinformation, etc.) and the behaviour of social media providers (aiming to increase engagement and ad efficacy), in this paper, we focus solely on the latter.

The argument proceeds as follows. First, we scrutinise the incentives inherent in social media providers' business model, namely, to have users spend as much time in-app as possible and various functionalities deployed to achieve this goal. Second, building upon the empirical literature in psychology and psychiatry, we outline a general picture of the mental harms of using social media constructed around these incentives. Third, we introduce the risk management obligations that the DSA imposes on certain social media providers, focusing on the obligations to mitigate risks of mental harms. Fourth, we analyse the possible meanings of the three mental goods protected by the DSA: (a) mental well-being of individuals, (b) public health (including public mental health) and (c) mental integrity (as a fundamental right). Fifth, we further operationalise these mental goods by discussing how the art. 35 requirements for risk mitigation should be understood in their context. Sixth, we discuss the limitations of the DSA as the tool for combating mental harms associated with social media use.

2. Providers' incentives in the attention economy and social media's design

To understand how and why social media platforms engage their users and where the systemic risks of mental harm come from, it is necessary to analyse the business model on which their providers rely. Arguably, risks of certain mental harms are not inherent to the product of social media as such but to their providers' business model (as one of us has argued extensively; see Pałka, 2021, 2025).

The conventional wisdom among many legal scholars holds that users "pay" for social media access with personal data concerning them (De Franceschi, 2022; Hacker, 2019; Metzger, 2017; DCD art. 3.1). This view strikes us as incomplete. Personal data still needs to be monetised, and the most common way is through targeted advertising (Alphabet, 2024; Meta, 2024; Pinterest, 2024). In this business model, the revenue of social media providers depends, in general, on (a) the price they can charge for ad placement and (b) the number of ads they can display. The former

links to the effectiveness of ad-delivery systems, which grows with more data amassed (though note the critical assessment in Hwang, 2020). The latter links to the amount of time people spend using the service. Consequently, users can be said to “pay” for social media access by using them (what, admittedly, is counterintuitive; see Rosenquist et al., 2022) and encountering the ads along the way (what, in turn, is quite intuitive and, in itself, not new).

Attention economy is the concept many scholars and commentators have used to describe the socioeconomic reality in which such business models prevail (Newman, 2020; Trzaskowski, 2022; Williams, 2018; Wu, 2016, 2019). Arguably, the attention economy, i.e., the widespread presence of media providers relying on a business model of offering cheap or free products to consumers in exchange for featuring ads, thereby “reselling their attention” to advertisers, predates the rise of internet and social media. Tim Wu tracks its origins back to the 19th century and very cheap newspapers full of ads, and then demonstrates how each next media type, including radio and television, partly relied on the attention economy (2016). Yet, the widespread usage of social media can be deemed to differ from the previous incarnation both quantitatively and qualitatively. Regarding the former, not only do individuals use social media for several hours throughout the day (Statista, 2025) – this was, arguably, true with television as well – but they often open these apps throughout the day, including right after waking up (Tamašiūnas, 2024), when at work (Yu & Cao, 2018), or when commuting (Tommasi et al., 2023). Regarding the latter, as we discuss below, not only do social media providers have a whole range of tools encouraging continued use, but they can also use them in a highly personalised manner relying on vast amounts of data concerning both the targeted user and the population at large (Mik, 2016; Pałka, 2023; Yeung, 2016).

Consequently, in the words of Jack Balkin, the providers of social media have “perverse” incentives “to surveil, addict and manipulate their end users” (Balkin, 2018, p. 1). It is in the providers’ direct interest for users to spend as much time in-app as possible so that corporations can collect more data and display more ads (Bhargava & Velasquez, 2021; Pałka, 2021, 2025). Moreover, they have the technical and design abilities to act upon these incentives. Currently, providers do so by deploying various mechanisms to maximise user engagement and time-on-device (Langvardt, 2019; Ronkainen, 2023). Some design features, like the infinite scroll, exist to keep users from leaving the app (Tortorici, 2020). Others, like well-timed notifications, operate to have users return as often as possible (Pielot et al., 2014).

Generally, the providers’ goal is for users to develop a habit of constantly checking their apps (Ronkainen, 2023), and for this purpose, they use various techniques and

employ numerous mechanisms (Bhargava & Velasquez, 2021; Montag et al., 2021). For example, “Pull-to-refresh” features, notification systems and even the temporary intentional suspension of the loading screen (Morgans, 2017) serve to carve out so-called variable reinforcements (i.e., rewards) (Bhargava & Velasquez, 2021). It motivates app use more effectively than a regular schedule of reinforcements (Ferster & Skinner, 1957; Wu, 2016), thus mimicking slot machines (Griffiths, 2018; Williams, 2018). Moreover, an interface based on endless scrolling is a way of presenting content that minimises natural stopping cues that users could use as an opportunity to stop the activity of using social media (Williams, 2018). The extensive functionality linked to the ability to give and receive social reinforcements (e.g., likes, comments) is another example of ways of “addiction” by exploiting the natural human need for social approbation and validation (Sherman et al., 2016). Some of these design choices have been discussed in the rich literature on the so-called dark patterns (Esposito & Ferreira, 2024; Luguri & Strahilevitz, 2021).

Finally and somewhat surprisingly, social media providers also have incentives to curate content in a way that optimises for toxicity; empirical research shows that “a lower exposure to toxic content on social media decreases engagement and post clicks” (Beknazar-Yuzbashev et al., 2024, p. 678). Indeed, there exist categories of speech, usually referred to as “lawful but awful” (Keller, 2022), that might be seen as “toxic” or “harmful,” which, however, neither the law considers illegal, nor the platforms necessarily want to ban, for freedom of expression reasons. In such situations, social media providers face a choice on whether to allow posting such content but to “downrank” or “demote” it (making fewer users see it on their newsfeeds, if any) or whether to amplify it and make more users see it. From the purely economic point of view, unintuitively, the providers have an incentive to do the latter.

Providers’ acting upon these incentives leads to what many users might perceive as harms. Let us now examine the empirical evidence for various types of mental harm stemming from providers’ choices in these areas.

3. Social media design and mental harms

The first and most straightforward potential adverse consequence of social media design is that their users might be spending more time in-app than they would like to. What is the goal of the providers might be considered a harm by the users. For example, 36% of American adolescents believe they spend too much time on social media (Vogels et al., 2022). This problem of too much social media use, sometimes occurring in much more extreme versions, has been discussed by law

and policy scholars under the label of “addiction” (Bernstein, 2023; Esposito & Ferreira, 2024; Rosenquist et al., 2022; Zakon, 2020). Obviously, there is a fuzzy line between using social media (much) more than one wants to and being “addicted” to it. Even though social media addiction has not yet been officially recognised as a mental disorder (Shannon et al., 2022), scholars have proposed criteria for such a potential qualification (symptoms of addiction): salience, mood modification, withdrawal symptoms, tolerance, conflict and relapse (Andreassen et al., 2012; Griffiths, 2005). The approach was based on the model of addiction within the biopsychosocial framework (Griffiths, 2005) and draws on existing and long-standing considerations regarding established behavioural addictions, such as gambling, and their diagnosis. Due to the ongoing debate surrounding internet gaming disorder, which has resulted in the inclusion of additional criteria (deception, loss of interest in previously enjoyed activities, continuing an activity despite of problems) (Petry et al., 2014), some researchers also take these additional criteria into account in the context of social media addiction (Van Den Eijnden et al., 2016). Crucially, however, one does not have to meet these clinical criteria to experience having a problem. In research on adolescents, scholars estimate that roughly 7% (across 29 countries) engage in problematic social media use as understood by the clinical criteria (Dormoff et al., 2022). At the same time, 57% of British girls and 37% of boys agree with the statement, “I think I’m addicted to social media” (Devlin, 2024). It is worth mentioning that in the context of the problem of excessive social media use, there’s also an opportunity cost (Buchanan, 1991); time spent scrolling one’s phone cannot be spent on other things like sleep, play (positively correlated with mental well-being, Haidt, 2024), or anything else (Turel & Serenko, 2012).

Second, excessive use of social media – i.e., the state that providers want to achieve – is positively correlated with other (than addiction) mental disorders and some of their symptoms, e.g., heightened symptoms of anxiety (Schou Andreassen et al., 2016; Vannucci et al., 2017; Woods & Scott, 2016), depression (Keles et al., 2020; Shensa et al., 2017), eating disorders (McLean et al., 2015; Santarossa & Woodruff, 2017), body image concerns (Fardouly et al., 2018), or even self-harm (Memon et al., 2018). There are many mechanisms through which the overuse of social media can cause the indicated mental issues, e.g., by reducing the quality of relationships with close ones (e.g., due to phubbing; Vanden Abeele et al., 2019), intensifying contact with specific, potentially harmful content (e.g., idealised beauty standards), or limiting other developmental activities, such as education or hobbies. Again, not everyone experiencing depressive mood or occasional anxiety will qualify as suffering from mental disorders like recurrent depressive disorder (World Health Organization, 2022a; 6A71) or generalised anxiety disorder (World Health

Organization, 2022a; 6B00). Nevertheless, from the user's perspective, the experience of harm might often occur long before a psychiatric diagnosis is warranted, and the symptoms experienced by users on a massive scale can be a problem from a public health perspective. Importantly, it might not always necessarily be the case that excessive use *causes* mental health problems; possibly, users who suffer from depression or anxiety deploy social media as a coping tool (or the influence can occur both ways, in a vicious cycle, Brewer, 2021; Wolfers & Utz, 2022). This said, the first studies documenting the causal effect of social media usage on mental health – where the experimental group whose use of social media was decreased improved on mental health metrics vis a vis the control group – have been published (Hunt et al., 2018; Lambert et al., 2022). Moreover, Twenge and Haidt, having analysed all (in their view) the possible causes of the ongoing mental health crisis in adolescents, concluded that social media use is the best possible explanation (Haidt, 2024; Twenge, 2023).

Third, social media users might experience negative emotions and unwanted mental states due to the functioning of the algorithmic systems. As noted above, empirical research demonstrates that decreasing toxic content decreases user engagement (Beknazar-Yuzbashev et al., 2024). Further, in an infamous study published in 2014, researchers cooperating with Facebook showed that using the platforms' recommender systems, they could change users' emotions from positive to negative merely by tweaking what content to display (Kramer et al., 2014). There is a possible economic reason for doing so; experiencing sadness or anxiety makes one more willing to pay a higher price for an advertised product and increases willingness to consume certain types of goods (Garg & Lerner, 2013; Kemp et al., 2013). Sometimes, it is in the providers' interest that users experience negative emotions. Sometimes, it is only a consequence of using interest-maximising algorithms. Research by Amnesty International in collaboration with the Algorithmic Transparency Institute (ATI) found that TikTok users who showed a one-time interest in sad content were intensely exposed to a huge amount of sad content, particularly within the 'For You' page. At the same time, young people interested in mental health were relatively quickly steered by the algorithm towards potentially harmful content (e.g., romanticising depressive thoughts or self-harm) (Amnesty International, 2023).

Fourth, some studies suggested that various online services, including social media platforms, can impair one's cognitive abilities (Chiossi et al., 2023; Firth et al., 2019; Sharifian & Zahodne, 2020). Some scholars argue that social media are an important part of the modern online world that is responsible for reducing atten-

tion span (Mark, 2023). Research shows that the mere presence of a smartphone on one's desk adversely affects their working memory capacity and functional fluid intelligence, even if a user manages to resist the temptation to look at the smartphone (Ward et al., 2017). Continuous use of social media has been shown to be linked with lower attention capacity and lower ability to solve numerical tasks (Hadar et al., 2017). Studies also suggest that social media use might adversely affect short-term memory in older adults (Sharifian & Zahodne, 2020) while TikTok, due to the specific nature of content displayed, may reduce prospective memory abilities (while other social media do not) (Chiossi et al., 2023). It should be noted that the results of studies on the relationship between social media use and cognitive decline should be interpreted with caution, as not all studies confirm harmful effects (Lara & Bokoch, 2021). Furthermore, establishing causality of this relationship is difficult, especially since many studies are correlational in nature. At the same time, given the highly persuasive nature of social media platforms and applications, such risks should be treated as real.

All of these harms are problematic from individual and collective perspectives. For individual users, experiencing negative emotions, mental disorders, cognitive impairments and excessive social media use might lower quality of life, psychological well-being and productivity. From the collective perspective, these problems not only directly translate into lower aggregate economic output and higher health-care costs but can also be observed in less tangible areas. For example, scholars have coined the term “phubbing” to describe the practice of using one's smartphone when engaging in social interactions, e.g., when a parent is scrolling Instagram while (not) looking after a child, or when one partner keeps checking their phone during a meal with the other one (Vanden Abeele et al., 2019). Consequently, such harms easily externalise and affect larger social systems (even non-directly), somewhat analogously to passive smoking.

Given all this evidence, as indicated in the introduction, calls for regulation have been made (EP, 2023). Even if European policymakers decide to pass new laws on these matters, it will be years before they become applicable. Yet, some tools are already available. In the remainder of this paper, we analyse how one such tool – the DSA – can be employed to combat the mental harms discussed above.

4. Systemic risks of mental harm within the DSA's logic

The DSA is a complex and horizontal regulation; scholars have already offered excellent overviews of its logic and contents (Broughton Micova & Calef, 2023; Broughton Micova, Schnurr, Calef, & Enstone, 2024; Busch & Mak, 2021; Cauffman

& Goanta, 2021; Gregorio & Dunn, 2022; Husovec, 2024; Söderlund et al., 2024, 2024; Turillazzi et al., 2023; van Hoboken et al., 2023). In this piece, we focus solely on these elements of the DSA which, in our view, might be directly helpful in combating mental harms stemming from social media's business model. These are the risk assessment (art. 34) and mitigation (art. 35) obligations imposed on the Very Large Online Platforms (i.e., VLOPs) and Search Engines (i.e., VLOSEs), i.e., the services with more than 45 million active monthly users in the Union (art. 33.1). Currently (in 2025), 23 VLOPs operate in the EU, including some prominent social media, i.e., Facebook, Instagram, LinkedIn, Pinterest, Snapchat, TikTok, X (formerly Twitter) and YouTube (European Commission, 2025).

Providers of VLOPs must conduct risk assessments (art. 34) and implement mitigation measures for the risks identified (art. 35). The DSA requires that they identify and analyse systemic risks stemming from the design, functioning, or use made of the service (art. 34.2). It further identifies four high-level categories of risk: (1) dissemination of illegal content; (2) negative effects on fundamental rights; (3) negative effects on civic discourse, elections, or public security; (4) risks concerning gender-based violence, public health, protection of minors and serious negative consequences to physical and mental well-being of individuals (art. 34.1.).

From the list of risks that should be assessed and mitigated under the DSA, one can deduce a long list of “goods” that the DSA protects. Within, three “mental goods” can be identified:

1. Mental well-being of individuals (explicitly mentioned in art. 34.1.4);
2. Public mental health (as an element of public health, art. 34.1.4);
3. Fundamental right to mental integrity (not mentioned explicitly, but included in the fundamental rights (art. 34.1.2), as the Charter in art. 3 guarantees it).

We discuss the meaning of each of these “mental goods,” as well as the various ways in which risks to them can materialise, in the following sections. The important takeaway, for now, is that systemic risks to each of these goods must be identified and mitigated by the VLOPs' providers. Regarding risk identification, the regulation underscores that providers should account for the influence on the systemic risks of the following factors: recommender systems and algorithmic systems, content moderation, enforcement of terms of service, and ad-delivery systems and data practices (art. 34.2.). If a service provider of a VLOP identifies a systemic risk, they should “put in place reasonable, proportionate and effective mitigation measures” (art. 35.1), tailored to the specific risk identified. The DSA lists possible examples of such mitigation measures, including changes to the design or

interface (art. 35.1.a), to the algorithmic (art. 35.1.d) and ad-delivery systems (art. 35.1.e) and raising awareness about the risks among the users (art. 35.1.i).

Within this logic, the primary decision-makers when it comes to identifying the risks and choosing the most appropriate mitigation measures are the VLOPs' providers themselves. However, and very importantly, the European Commission (EC) oversees the compliance of the VLOPs' providers with these requirements (art. 65). It has the power to request information from the providers (art. 67), conduct inspections (art. 69), order interim measures and accept commitments (art. 70-71) and ultimately fine the providers up to 6% of their total worldwide annual turnover in the preceding financial year (art. 74). In essence, the DSA tasks the corporations with diligently identifying the risks and effectively mitigating them, but the European Commission can check whether they have done so properly. This means that the EC would receive the yearly reports and either assess whether everything is fine, determine whether a specific risk has (not) been identified, or determine that the proposed mitigation measures are (in-)sufficient. As of the time of writing of this article, it has opened several investigations, including against social media, namely two against TikTok (European Commission, 2024a, 2024b) and two against Meta (European Commission, 2024c, 2024d).

As the list of goods protected by the DSA is long, one can easily imagine some of them receiving less attention than others. Hence, in the remainder of the paper, we take a close look at the three mental goods protected by the DSA, discuss the potential sources of systemic risks to them, and discuss preliminary ideas regarding these risks' mitigation. We hope that this exercise will be useful for the VLOPs' providers themselves, the auditors, as well as the European Commission, engaging in oversight and enforcement.

5. Mental well-being

The mental well-being of persons is the first "mental good" protected by the DSA. The regulation's art. 34.1.d obliges VLOPs' providers to identify and mitigate risks of "any actual or foreseeable negative effects in relation to gender-based violence, the protection of public health and minors and serious negative consequences to the person's physical and mental well-being." In this section, we discuss how the notion of well-being could and should be understood, what its relation to public health is, and which of the mental harms discussed in Section 3 could be perceived as (materialisations of) risks to mental well-being.

It is worth pointing out that the concept of mental well-being is closely related to

the concept of mental health, which will be discussed in the following section as a component of public health. This close relation is well illustrated by the definitions of both concepts used by the World Health Organisation (WHO). The WHO defines mental health by referring to the concept of well-being: “a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well and contribute to their community.” (World Health Organization, 2022b). At the same time, as part of its definition of well-being, the WHO compares it to health: “Well-being is a positive state experienced by individuals and societies. Similar to health, it is a resource for daily life and is determined by social, economic and environmental conditions.” (World Health Organization, 2021). Although these concepts are highly congruent, they are also partially distinct (Keyes, 2002; McAneney et al., 2015). Some studies show how the presence of a mental disorder (more often understood as a component of *mental health*) does not necessarily equal the absence of well-being (more often understood as a subjective feeling of happiness and satisfaction with life) and, conversely, the absence of a mental illness does not necessarily translate into experiencing well-being (Weich et al., 2011).

In the psychological discourses, well-being is most often framed in two ways: subjective well-being and psychological well-being. The concept of subjective well-being emphasises the hedonic understanding of happiness; well-being is the subjective feeling of satisfaction and enjoyment of life (Chen et al., 2013). The notion of psychological well-being is used to describe well-being understood in eudaimonic terms, that is, “the striving for perfection that represents the realisation of one’s true potential” (Ryff, 1995, p. 100). The paradigm of psychological well-being has resulted in the creation of theoretical models proposing specific components that determine well-being. Comparing the two approaches, it can be said that models of psychological well-being aspire to determine the objectified components of well-being and a good life, while research on subjective well-being focuses on identifying the factors that cause people to declare a subjective sense of happiness. From the perspective of considering possible paths of DSA application and enforcement, the concept of psychological well-being seems more useful due to its objectified and more structured approach. At the same time, in our view, the adoption of this concept does not need to result in the exclusion of important factors of subjective well-being. The threats to psychological well-being arising from social media use, discussed below, are valid for both perspectives, as the perspectives overlap in part on what they consider to constitute well-being (Ryan & Deci, 2001). For example, the psychological well-being model discussed below includes a component of close relationships with others, and research in the subjective

well-being paradigm shows that satisfying family relationships correlate positively with reported happiness (Diener et al., 2018).

The model of psychological well-being commonly accepted by psychologists and operationalisable for the purpose of DSA enforcement has been proposed by Ryff (1989) and further validated by numerous studies (Henn et al., 2016; Ryff & Keyes, 1995; van Dierendonck et al., 2008). This model considers the following components: (1) self-acceptance (positive attitude toward the self); (2) positive relations with others (having satisfying and warm relationships with people); (3) autonomy (being self-determining, independent and able to resist social pressure to think and behave in certain ways); (4) environmental mastery (having a sense of competence and mastery in managing the environment); (5) purpose of life (having goals in life and sense of directedness); (6) personal growth (having a feeling of development and sense of realising one's potential). Based on Ryff's model, it can be seen that at least several of the components of well-being she mentions may be negatively affected to some degree by social media use, even if one ignores the obviously well-being-degrading experiences of mental disorders (described in the next section in the context of public mental health). For example, regarding self-acceptance, the threat may lie in social media's promotion of unrealistic beauty standards, with the help of beauty content-promoting algorithms and beauty filters, among others (Fardouly et al., 2018; Rowland, 2022). According to Meta's internal research, a third of British and American teen girls declare that using Instagram worsens their satisfaction with their bodies (Wells et al., 2021). Further, the aforementioned phenomenon of phubbing illustrates well that social media, in addition to enabling the realisation of social interactions, also has the potential to deteriorate intimate relationships in offline reality (Vanden Abeele et al., 2019; Wang et al., 2017), which strikes at the substantial component of well-being, which is close and warm relationships with others. A threat to the sense of autonomy and agency may be the addictive design that makes many users feel like they are using social media more than they would like to, and therefore, their control over their own behaviour is hindered to some degree.

Of all the legal goods discussed, the concept of well-being emphasises to the greatest extent that users should be protected not only from mental harm, such as officially recognised mental disorders, but also from the loss of a satisfying quality of life or a sense of fulfilment. At the same time, the DSA uses this notion in the context of the phrase “*serious* negative consequences for physical and mental well-being of individuals,” which suggests that when it comes to an individual's well-being, protection should not address all harms to well-being caused by the use of

social media, but only to those significantly disrupting it. For example, one could argue that merely making some users experience more negative emotions, as was done in the study by Kramer and colleagues (2014), even if it constitutes a negative consequence to mental well-being, should not yet be seen as a *serious* one (as people becoming sad is a widespread and natural occurrence in daily life). However, we argue that many mental problems that the literature associates with social media use, developing over long periods of time, can be considered as seriously threatening the well-being of individuals. Therefore, their emergence should be the subject of VLOPs' risk assessment and the implementation of mitigation measures. Put differently, even though the DSA's text is insufficient to *in abstracto* delineate the line between serious and unserious harms to mental well-being, the VLOPs' providers should be the ones required to argue that harm is not serious enough to be mitigated, as problems that in isolation might seem unserious can, over time, constitute risk factors for much more serious ones. In this sense, one must analyse the impacts on mental well-being and public mental health jointly, and if the impact on the former can lead to a negative impact on the latter, it should, in our view, be considered serious.

6. Mental health (as public health)

The second mental good protected by the DSA is mental health as a component of public health. Art. 34.1.d obliges the providers of VLOPs to identify and mitigate the risk of “any actual or foreseeable negative effects in relation to (...) the protection of public health.” What is public health? Many definitions have been proposed (see the scoping review in Azari & Borisch, 2023), though this seems to result from the fact that public health is both (i) the science of protecting the health of populations (and the social effort based on that science) and (ii) one of the societal goals (the state of healthiness in which public wants to find itself). Childress and colleagues proposed the following characterisation:

Public health is primarily concerned with the health of the entire population, rather than the health of individuals. Its features include an emphasis on the promotion of health and the prevention of disease and disability (...) (Childress et al., 2002).

In this sense, public health is a collective and paternalistic good – in contrast to the concept of mental well-being, which, whether we use the paradigm of psychological or subjective well-being, is individualistic in nature. Public health is collective because its goal is the overall health of the population rather than of any spe-

cific person. It is paternalistic because objective ways of measuring one's health exist (even if based partly on individuals' subjective assessment). That mental health makes up an important element of public health is, at this point, beyond controversy (Herman & Jané-Llopis, 2005; Prince et al., 2007; Wahlbeck, 2015), even if some national constitutional courts still hesitate to assert that the right to health unequivocally includes mental health (Bublitz, 2020b, p. 388). Wahlbeck writes:

Public mental health deals with mental health promotion, prevention of mental disorders and suicide, reducing mental health inequalities and governance and organization of mental health service provision (Wahlbeck, 2015, p. 36).

Crucially for this paper's argument, the use of VLOPs might *in itself* (regardless of the problems with the *content* presented on social media, for example, cyberbullying or health-related disinformation campaigns) present a risk to public health, more specifically mental health, on the population level (Haidt, 2024; Twenge & Hamilton, 2022; Udupa et al., 2023). As indicated in section 3 above, there exists robust evidence of a correlation between social media use and negative mental health metrics (Keles et al., 2020; Vannucci et al., 2017; Woods & Scott, 2016) and a growing body of empirical evidence for the causal claim (Haidt, 2024; Hunt et al., 2018; Lambert et al., 2022; Twenge, 2023). That the phenomena discussed in the literature are a problem from a public health perspective is understandable given the range of influence that VLOPs have – all the risks posed by using social media have an impact on a mass scale, thus constituting environmental risk factors. At the same time, some of the negative phenomena indicated in the studies, even without the argument of “massive scale,” have a high potential to affect the entire social system. For example, even though advanced stages of mental disorders such as depression or eating disorders do not affect the general user population, they still pose a serious challenge to public health and public policies, contributing, for example, to increased mortality from suicide (Holma et al., 2010) or significant health deterioration (as in the case of anorexia nervosa disorder, Arcelus et al., 2011). Another example of a threat to mental public health is the previously mentioned phenomenon of phubbing - ignoring close people as a result of social media use. The distinction (in the scientific literature) of this phenomenon (Vanden Abeele et al., 2019) and identifying its negative consequences for close relationships (Wang et al., 2017) shows that social media overused by an individual has the potential to negatively affect the entire family and social system of the user regardless of whether their close family members share the tendency to use social

media in such a way.

Consequently, under the DSA art. 34.1., the risk that needs to be managed is the possibility that the design, functioning, or use of a VLOP creates an environmental risk factor in the pathogenesis of mental health problems. This means that the aforementioned mental harms connected with social media use – as harms that have the potential to occur on a large scale and affect the entire social system – should become the subject of risk assessment and the implementation of mitigation measures.

7. The fundamental right to mental integrity

The final mental good protected by the DSA is the fundamental right to mental integrity. Although not invoked explicitly, it is protected within the category of “any actual or foreseeable negative effects for the exercise of fundamental rights” (art. 34.1.b) as it is listed in the Charter of Fundamental Rights of the European Union (“the Charter”). The Charter’s art. 3 reads:

1. Everyone has the right to respect for his or her physical and mental integrity.
2. In the fields of medicine and biology, the following must be respected in particular:
 - a. the free and informed consent of the person concerned, according to the procedures laid down by law; (...).

Unlike the two mental goods discussed above, mental integrity is not a term of the art used in empirical disciplines like psychology or psychiatry. It is a normative concept currently being developed by lawyers and philosophers (Douglas & Forsberg, 2021; Istace, 2023). Its precise legal meaning is not yet fully established, as the courts have seldom invoked it directly (Bublitz, 2020a; Istace, 2023). However, normative scholars have contributed to the development of the concept. It is often discussed in connection with neurotechnologies potentially enabling direct interference with the functioning of one’s brain or mind (Bublitz & Merkel, 2014; Ienca & Andorno, 2017; Lavazza & Giorgi, 2023). Bublitz and Merkel, distinguishing between violating one’s bodily and mental integrity, provide examples of the latter. These would include, among others, secretly adding an otherwise harmless substance eliciting hunger to a welcome drink or covertly spiking employees’ bever-

ages with a chemical that increases their cognitive capacities (Bublitz & Merkel, 2014, pp. 58–59).

Informed consent plays a central role in the concept of mental integrity. What Bublitz's and Merkel's examples have in common is not the presence of any material harm – increased work performance might even be a good thing – but interference with one's mind's functioning without the person's comprehension and permission. The importance of consent is underscored across the scholarship (Douglas & Forsberg, 2021; Lavazza & Giorgi, 2023) and highlighted by the art. 3.2.a of the Charter. In this vein, Lavazza formulated the following definition:

Mental Integrity is the individual's mastery of his mental states and his brain data so that, without his consent, no one can read, spread, or alter such states and data in order to condition the individual in any way (Lavazza, 2018, p. 4).

In this sense, mental integrity is a liberal and individualistic concept, more procedural than substantive. It delegates the decision on what is permissible to the individual (within the boundaries set by the law). An act or a practice interfering with one's mental state would not be judged by its consequences (positive or negative) but on formal (procedural) grounds. The test question would be: has the person whose mental state is being altered given free and informed consent to such an alteration? Consequently, under the DSA art. 34.1.b., the risk that needs to be managed is the possibility that the design, functioning, or use of a VLOP leads to an alteration of a user's mental state without his or her consent.

An example of such interference can be found in a 2014 study published by researchers cooperating with Facebook, hinted at above, in section 3. Kramer and colleagues, with the assistance of the platform's provider, conducted an experiment on almost seven hundred thousand people, testing whether their emotional states can be modified from positive to negative (and vice versa) through exposure to specific content on their newsfeeds. The answer was affirmative. In the words of the study's authors:

We show, via a massive (N = 689,003) experiment on Facebook, that emotional states can be transferred to others via emotional contagion, leading people to experience the same emotions without their awareness. We provide experimental evidence that emotional contagion occurs without direct interaction between people (exposure to a friend expressing an emotion is

sufficient) and in the complete absence of nonverbal cues (Kramer et al., 2014, p. 8788).

Unsurprisingly, the experiment led to a public scandal; the company apologised but claimed that everything was legal, as such use of users' data was compliant with its terms of service (Meyer, 2014). Scholars offered various accounts of why this was ethically unacceptable (boyd, 2016; Selinger & Hartzog, 2016). As of today, the mere possibility of such an experiment taking place without users' consent could violate art. 34.1.b. DSA.

The one significant complication stems from the question: What alterations of mental states by the VLOPs' providers require the users' consent? It seems that alteration of mental states is an unavoidable consequence of participating in social life. Scholars discussing mental integrity in the context of neuroimplants proposed a distinction between technological and verbal means of alteration (Douglas & Forsberg, 2021, p. 186). Bublitz made a similar argument, distinguishing between direct and indirect alterations, the latter stemming from sensory inputs and considered lawful (Bublitz, 2020b). Put simply, changing one's mental state through a brain implant requires consent to be lawful while doing so by telling them something does not.

If this was indeed the test, it would be difficult to imagine VLOPs' providers – at least for now – violating one's right to mental integrity. However, bearing in mind the results of the Kramer et al., 2014 study, the risk of platforms abusing their ability to influence users with appropriately targeted algorithms must be considered. Although currently, content recommendation systems seem to work in a manner predictable to most users, one cannot exclude a scenario in which they are modified to even further maximise the platforms' interests and earning potential while interfering with the mood or attitude of users in ways beyond what they typically expect. Again, the texts of the DSA or the Charter are insufficient to authoritatively state where the line between violation of the fundamental right to mental integrity and acceptable consentless modification of mental states lies. However, we firmly believe that this is a risk that the DSA requires the VLOP providers to manage. Researchers working on social media threats generally do not have access to data on platforms that would enable them to prejudge mental integrity interference according to the above understanding of it. However, service providers do, and it will also be possible for the Commission equipped with investigative powers (art. 67-69 DSA).

8. From theory to practice: What providers and enforcers should check and do

In the sections above, we have discussed the various mental harms that users of social media might suffer, the sources of these risks, as well as the possible meanings of the three mental goods protected by the DSA. In this final section, we operationalise these theoretical and conceptual considerations in the form of concrete steps that the VLOPs' providers, the auditors, and the European Commission might take.

First, and most fundamentally, we argue that the VLOPs' providers should acknowledge that their ad-driven business model (i.e., their participation in the so-called "attention economy") poses inherent systemic risks to the three mental goods protected by the DSA: the mental well-being of individuals, public mental health, and the fundamental right to mental integrity. The existing scientific literature in psychology, psychiatry, and public health might not be sufficient to unequivocally *prove* that ad-funded social media platforms *cause* all the mental harms discussed in the previous sections, but, in our view, it is more than sufficient to acknowledge that such a risk is plausible and must be assessed by the VLOPs' providers. The failure to acknowledge and discuss these risks, or confusing them with risks occurring merely on the level of other users' behaviour, should be seen as a violation of art. 34 and 35 DSA.

Second, we argue that the risks to various mental goods, stemming from different design choices, should be discussed separately, as they originate from distinct sources and may require distinct mitigation measures. For example, the risk assessments should address questions like: Can the user interface (like infinite scroll), *or* the functioning of algorithmic systems (including the timing of notifications or the choice of content to display) *lead to* lowering users' self-acceptance (e.g., through facilitating constant comparisons), worsening relations with others (e.g., due to phubbing), or decreasing the sense of autonomy (e.g., due to "feeling of addiction"), etc.? These are the risks to the mental well-being of individuals. Regarding public mental health, one should inquire into whether the same sources of risk (user interface, functioning of algorithmic systems, etc.) can lead to occurrences constituting possible environmental risk factors in the pathogenesis of mental disorders like recurrent depressive disorder, generalised anxiety disorder, body dysmorphia, or eating disorders. These are the risks to public health. Finally, VLOPs' providers should inquire whether the same sources lead to alterations of mental states, like new cravings (e.g., to check the app constantly), changes in emotions (e.g., excitement, sadness, or anxiety), cognitive impairments (like prone-

ness to distractions, lower ability to focus), or exposure to risk factors regarding the pathogenesis of mental disorders, that the users cannot be presumed to have given free and informed, even if implicit, consent to? Conversely, if the providers believe that such modifications do not require informed consent, they should explicitly write that in their risk assessments. These would be the risks to the fundamental right to mental integrity. The failure to engage the literature indicating the possibility of such harms occurring should, in our view, be seen as a violation of art. 34 and 35 DSA.

Finally, if answers to the questions from the former paragraph, in any aspect, are affirmative, the VLOP providers should demonstrate what risk mitigation measures they have taken. These will differ depending on the mental good and the source of the risk, and should be both tailored to the specific risk and accompanied by an explanation why the providers believe they are “reasonable, proportionate and effective.” The measures aimed at giving users more control (increasing autonomy) could include those for managing time spent within the service (like an always-visible little timer indicating number of minutes spent today or an option to create time restrictions) or creating tools enabling the users to easily choose what kind of content to curate for in a given moment (“now show me funny stuff, work-related stuff, friends’ life updates, news, etc.”). The measures aimed at raising awareness could include more explicit contract terms, like “we do not charge you money, but do use all the following tools to have you spend as much time looking at ads as possible”) or warnings whenever one opens the app, e.g., “some studies indicate that using our product might lead to mental health problems” (as the former U.S. Surgeon General suggested; Murthy, 2024). These are just examples; what is important, however, is that the VLOPs’ providers demonstrate exactly which measures are employed to mitigate which risks.

9. The DSA’s limitations vis-à-vis mental harms

Of course, the DSA is not a silver bullet, and it will not, on its own, suffice to solve all the possible mental harm problems in the attention economy. First, the art. 34-35 requirements for risk assessment and mitigation apply only to Very Large Online Platforms and Search Engines. Possibly, once regulatory know-how is amassed after several years of the DSA’s application, specific requirements for smaller platforms might need to be considered.

Second, just as every regulation grounded in the logic of risk mitigation, the DSA has all the limitations inherent in this regulatory technique. As Margot Kaminski points out (2023), risk regulation neither addresses the broader societal question

of whether a specific technology or business model should be allowed to be adopted in the first place, nor is it well-suited for making whole the individuals who have already suffered damages. The former requires much deeper political decisions, while the latter might call for a potential rethinking of the tort law rules, which have traditionally been very cautious in awarding damages for purely psychological harms (Pałka, 2024).

Third, the DSA does not create private causes for action, relying instead on public administrative enforcement. Such an enforcement structure might work well under certain conditions, but, as seen in the examples of consumer law (Micklitz & Saumier, 2018) or data protection law (Gentile & Lynskey, 2022), it faces its own limitations. Without a private litigation counterpart, ideally through some sort of collective action mechanism, the enforcement bodies (in this case, the European Commission) face a gargantuan task, requiring significant personnel resources to accomplish. This task may become even more challenging given the broader geopolitical context.

Nevertheless, we believe that a wise approach to the DSA's enforcement might be a solid first step in mitigating the risks of mental harms resulting from social media use. Unlike regulations that may be introduced in the future, this law is already in effect. We believe the time is right to utilise it.

10. Conclusion

As we have argued in the paper, there exists a robust scientific literature to support the claim that social media use poses a risk of several mental harms, including overuse (and sometimes addiction), symptoms of other mental disorders (including anxiety, depression, eating disorders), impairments to cognitive functions, and generally negative mental states. These risks might warrant passing additional regulations, as requested by the European Parliament. However, as new regulations may take years to come into effect, our goal in this article was to demonstrate how an existing law – the Digital Services Act – can be used to combat mental harms, or at least mitigate the risks of them materialising.

We have outlined how several types of mental harms result not from the inherent features of social media as such, nor solely from the conduct of other users, but rather from the design and algorithmic practices deployed by the VLOP providers to maximise profit. We have further discussed the possible meanings of the three mental goods protected by the DSA – mental well-being, public health and the fundamental right to mental integrity – and how they could be operationalised for

the purposes of the DSA compliance, oversight and enforcement. Our aim was to provide theoretical assistance to VLOPs providers engaging in systemic risk assessment and mitigation, as well as auditors, researchers, and enforcers, including the European Commission.

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