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Student Publication

Digital addiction by design

How to regulate persuasive design by Very Large Online Platforms in Europe

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Digital addiction is a growing problem throughout Europe. This problem is significantly driven by a small number of Very Large Online Platforms (VLOPs) on which people spend most of their time online. VLOPs rely on persuasive design strategies to influence users and maximise the time they spend on the platform. Thus, the use of persuasive design strategies is linked to the prevalence of digital addiction in Europe. Despite recent advances in European regulation of the digital sphere, existing legislation does not sufficiently address persuasive design practices.

This paper identifies three policy approaches for the European Commission to limit the harm from persuasive design practices. Upon evaluation, the 'Guide' approach emerges as favourable, as it reduces digital addiction effectively, is regulatorily feasible, and leaves room for business and innovation.

Finally, the paper proposes a stakeholder engagement strategy and three prioritised policy initiatives to establish a path to the adoption of the 'Guide' approach. The three initiatives aim at the collection of data, the consultation with experts to operationalise the 'Guide' approach and the definition of a framework for evaluation and enforcement.

#digitaladdiction
#persuasivedesign
#addictionbydesign

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1 Introduction

As citizens' lives become increasingly digitalised, they should be protected from harm resulting from the use of digital products and services – such as digital addiction. The

use of persuasive design practices by Very Large Online Platforms (VLOPs) is a key driver in increasing digital addiction in the European Union (EU). Persuasive design describes the use of features in products and services, guided by research in behavioural psychology, that influence user behaviour systematically. Given the corporate incentives of VLOPs, persuasive design strategies are widely used to maximise the time users spend on a platform. By increasing the overall time spent online, persuasive design strategies likely contribute to the digital addiction of users. This paper first identifies the nature of the policy problem and then, upon evaluation, provides a policy recommendation to address digital addiction in the EU.

The EU can lead the way in regulating persuasive design practices and establish a fairer playing field between users and VLOPs based on shared fundamental values. This white paper sets out a regulatory approach that can benefit European society and economy:

- by empowering **citizens** with the ability to determine how they use digital services/products to further their own goals and be protected against new forms of addiction and problematic uses of the internet;
- by creating an environment for **businesses** to operate in a clearly defined regulatory framework with fair standards and appropriate requirements that incentivise innovation.

2 Policy problem

2.1 Digital addiction in Europe

Many concepts have been put forward to describe behaviour related to digital addiction, such as "excessive internet use", "problematic internet use", "harmful internet use", "smartphone addiction", "technological addiction", or "internet addiction".

Since clear-cut definitions for differentiating between these terms have not yet emerged, throughout this paper, the term "digital addiction" will be used to describe behaviour that is "characterised by large amounts of time spent on non-work-related internet activities, accompanied with the experience of traditional addiction symptomatology" (European Parliamentary Research Service, 2019, p. 11).

Symptoms of digital addiction include (ibid.):

- Proneness to conflict on interpersonal levels and difficulties in maintaining healthy social relationships.
- Higher tolerance: Affected persons constantly increase the use of digital services.
- Functional impairment leading to the inability to deal with aspects of daily life.
- High levels of comorbidity with other mental disorders, for example, anxiety or depression.

Digital addiction is a growing problem in EU member states. A review by the European Parliamentary Research Service finds that prevalence estimates range from 0.3% to 26.7% in the population (European Parliamentary Research Service, 2019). Another large-scale study with more than 5500 participants in nine different European

countries found the prevalence to range even between 14.3% and 54.9% (Laconi, 2018). Assuming average screen time levels will increase further, digital addiction will likely impact even more people in the coming years.

While studies differ in terms of estimated prevalence in Europe, even the lowest estimates imply that digital addiction negatively affects millions of people in Europe. Thus, it is crucial to start tackling this problem now, as existing research suggests that digital addiction continues to impact peoples' lives in ever-more digitalised societies.

2.2 VLOPs and persuasive technology

A small number of platforms primarily drive digital addiction. A large-scale study found that US users in 2021 spent 90% of their time on social media on just 5 platforms: Facebook, Instagram, YouTube, Snapchat, and Twitter (Insider Intelligence, 2022). Comparable data for Europe is limited, but a similar highly concentrated pattern seems likely based on the market shares of the platforms within Europe. These digital platforms charge users very little or nothing for membership on the platform. Instead, their business model relies primarily on collecting data and monetising it through paid, targeted advertisements. Consequently, these companies are incentivised to design their products to maximise the time users spend on the platform (Langvardt, 2019).

While digital platforms attempt to steer the behaviour of their users in different ways, the design of their products is one of their most powerful levers. In this regard, Oinas-Kukkonen & Harjumaa (2009) developed a theoretical and practical framework to analyse Persuasive System Design (PSD) grounded in attitudinal theories from behavioural psychology. At its core, PSD contains four overarching design system qualities and 28 design principles employed by persuasive system developers. For further details, see Appendix A.

PSD has been systematically applied and extended by design teams in digital companies, as illustrated by notification-reward mechanisms (Berthon, 2019). Notifications via email or smartphone, for example, are used to make users start or resume a particular activity on the platform. In anticipation of rewards like reposts or likes, a notification causes the release of dopamine in the brain, resulting in a craving for further stimulation. Similarly, infinite scrolling, usage streaks or personalised content exploit weaknesses in users' psychology, with a single platform often employing several hundred such strategies. Importantly, many of these strategies are closely related to practices from the gambling industry, further implicating their addiction-inducing nature (Berthon, Pitt, & Campbell, 2019) .

When users can no longer control the time they spend on digital products, hooked by strategies typically associated with casinos (Schüll, 2012) and suffering psychological and physical harm, a line is crossed. At this point users no longer choose to consume a product they enjoy, instead they suffer from digital addiction, often induced by persuasive design.

3 Insufficient existing regulation

EU-level regulation is crucial in addressing the policy problem of digital addiction. First, a level-playing field across all member-state economies is essential in addressing the issue of digital addiction. A harmonised approach across the EU will ensure that

citizens in all member states have the same level of protection and that companies operating in the EU are held to the same standards. Second, the EU has the capacity and power to negotiate with VLOPs, which individual member states may lack.

Finally, an EU-level approach ensures consistency with existing policy provisions in the policy area that lays down harmonised rules for VLOPs. Over the past years, the EU has introduced a range of legislation to regulate digital platforms with a particular focus on VLOPs. While existing legislation is ambitious in scope, the problem of digital addiction caused by persuasive design remains insufficiently addressed. Nevertheless, the existing legislation provides a strong precedent for various policy options to regulate persuasive design. Table 1 gives a detailed overview of existing legislation and its relevance to the problem of digital addiction.

Table 1. EU legislation and digital addiction

EU Law	Function	Relevance for digital addiction
Charter of Fundamental Rights of the European Union (CFR)	Lays down fundamental political, social, and economic rights for EU citizens.	The CFR guarantees that safeguarding fundamental rights is a primary goal of the DSA and AI Act. The right to protection of personal data (Art. 8), Freedom of thought (Art. 10), and Freedom to conduct business (Art. 16) are especially important in the context of digital addiction (*Charter of Fundamental Rights of the European Union*, 2016).
General Data Protection Regulation (GDPR)	Protects data privacy and security.	The GDPR expands on CFR Art. 8, which guarantees personal data protection by outlining the data subject's rights and providing crucial definitions, such as informed consent in the digital realm. The main objective is to define and guarantee the fundamental rights of data subjects. Yet, the rights that the GDPR introduces focus strongly on data protection and privacy and not on ensuring human autonomy. Still, the right to object (Art. 21), the conditions for free consent (Art. 7), and the right to transparent information (Art. 12) provide a solid basis for strengthening users' rights concerning persuasive design ('Regulation 2016/679', 2016).

Digital Services Act (DSA)	Protects fundamental rights of digital services users while fostering competition and business development.	The DSA imposes vital transparency and risk management requirements on VLOPs. With regards to digital addiction, the increased scientific access is likely to strengthen the body of evidence on digital addiction and the mechanics of persuasive design. Further, Art. 29 (2) on the use of recommender system of VLOPs requires an easily accessible functionality that allows users to restrict algorithms' use of profiling. This article provides a solid basis for expanding users' rights to adapt the interface and algorithms to their preferences ('Regulation 2022/2065', 2022).
Artificial Intelligence Act (AI Act)	Ensures and enforces that AI systems respect fundamental rights while fostering competition and business development.	The AI Act represents the most recent legislative proposal that is relevant in the context of digital addiction. It prohibits "dark pattern" AI based on Art. 5 and AI systems that manipulate and exploit the vulnerabilities of children and other people due to their age and mental and physical incapacities (European Commission COM/2021/206 final, 2021).

Digital addiction represents an underregulated problem beyond prohibiting interface designs that deliberately trick users into unintended and potentially harmful choices, the so-called "dark patterns", and special group protection. However, to fulfil the goal of increasing societal well-being, as outlined in the Commission's AI strategy and the Commission's White Paper on Artificial Intelligence, the EU should address the problem of internet addiction specifically (European Commission COM/2018/237 final, 2018; European Commission COM/2020/65 final, 2020). The current framework of existing regulation provides a solid basis for several policy options to regulate persuasive design.

4 Policy options

4.1 Target of regulation

In line with the regulatory approach of the DSA and the Digital Markets Act (DMA), VLOPs should face the most significant regulatory burden under the proposed policy approach ('Regulation 2022/2065', 2022; 'Regulation 2022/1925', 2022). The rationale

for focusing on VLOPs is twofold. First, as discussed in section 2.2, only a small number of large online platforms are the primary driver of users' time online. Thus, tackling the use of persuasive technologies by these platforms should prove an effective lever in reducing digital addiction in Europe. Second, compliance with the regulation will come at a cost, which can be substantial depending on the specific policy approach. Compared to SMEs, VLOPs are much better positioned to comply with complex and costly regulations.

Drawing on the user thresholds defined in DSA and DMA, targeting VLOPs with more than 45 million monthly users in the EU would be a useful basis for the proposed regulation. Next, regulators need to evaluate to what extent these VLOPs contribute to digital addiction, for instance, by requiring them to report selected metrics such as the average daily usage time or the daily usage time of the 20% most active users. If these proxies for the prevalence of addiction on a platform exceed certain thresholds, they would have to comply with the new regulation.

4.2 Policy options: Inform, guide, restrict

The following section outlines three fundamental policy options, 'Inform', 'Guide', and 'Restrict', that are intended to mitigate digital addiction vis-a-vis regulating persuasive design techniques. Furthermore, the effects of each policy option are illustrated with the persuasive design feature "infinite scrolling". Crucially, the policy options are not mutually exclusive, meaning that a combination of them is possible and overlap exists, especially between the 'Inform' and 'Guide' options.

4.2.1 Inform

'Inform' is primarily a transparency-based approach, meaning that users must be informed about the usage of persuasive design techniques. Most importantly, the policy option would entail mandatory design feature labelling and informed consent standards. To implement the 'Inform' option, minimal extensions of existing consumer protection laws and more minor amendments to the transparency requirements within the GDPR and DSA would be necessary.

Box 1. Infinite scrolling and 'Inform'

An 'Inform'-based regulation would require VLOPs to label infinite scrolling as a persuasive design technique and provide links to information on the effects of endless scrolling on relevant metrics such as average time spent on the platform. Additionally, when an app is downloaded consent standards, for instance, would be extended to include disclaimers on the use of infinite scrolling.

4.2.2 Guide

'Guide' primarily aims to empower users to deactivate persuasive design features. Thus, this policy option does not seek to prohibit persuasive design but instead provides users with the right to adapt the interface of digital services. Furthermore,

users should be guided towards choosing specifications that are the least addictive. This guiding mechanism includes the requirement of user-centric design defaults, which limit the risk of digital addiction. This policy option builds on DSA Art.29 (2) that allows users to easily adapt their interface and deactivate recommender systems' usage of user profiling.

Box 2. Infinite scrolling and 'Guide'

The effect of the 'Guide' option on the infinite scrolling feature is twofold. First, users would gain the right to deactivate or activate the feature at any time. Second, the feature would be deactivated as a default setting. Trying to activate the feature would prompt a disclaimer, informing the user about the detrimental effects associated with infinite scrolling, for instance, through an explainer video.

4.2.3 Restrict

'Restrict' represents the heaviest intervention and builds on the considerations of unacceptable risks from the EU AI Act. A 'Restrict'-based regulation would build on a framework that allows public institutions to evaluate the harm caused by persuasive design techniques. Based on this framework, industry and legal experts would classify features, leading to the ban of features that are deemed too harmful.

Box 3. Infinite scrolling and 'Restrict'

If the infinite scroll feature were classified as causing too much harm, the feature would be banned. However, such a decision would provide the VLOPs with sufficient time to adapt the feature in a way that might change the classification. A change in classification goes along with a change in transparency requirements and usage restrictions.

4.3 Evaluation

The three policy options are evaluated along the following three criteria:

(I) **Enabling digital self-determination.** Digital platforms satisfy users' meaningful needs, like organising around a cause, interacting with friends, or seeking entertainment. However, persuasive technologies induce "over-consumption", exceeding the time and engagement an informed, self-determined user would choose. Hence, this criterion assesses the capacity of a policy option to enable users to take control of their behaviour on digital platforms and reduce their time online.

(II) **Regulatory feasibility**. A policy should be feasible insofar as the financial cost and the required domain knowledge can be realistically managed. In addition, the policy should be future-proof and include mechanisms to account for technological developments.

(III) **Room for business and innovation.** Digital platforms advance technological innovation and foster economic activity. Any regulatory response should weigh the costs on companies and minimise economic disruptions.

4.3.1 Inform

Table 2.

(I)	**Enabling digital self-determination**	Evidence from other harmful products, particularly smoking, suggests that labelling has a very limited effect on addictive behaviour (Shadel, et al., 2019). Similarly, studies find that the consent provided under the GDPR does not induce users to make more thoughtful decisions over their privacy. Thus, a policy response solely focused on educating users will likely fail to curb digital addiction effectively.
(II)	**Regulatory feasibility**	The design requirements for labelling and consent on digital platforms is neither particularly costly nor complex.
(III)	**Room for business and innovation**	Adapting to the new rules would be relatively simple and without major economic disruptions.

4.3.2 Guide

Table 3.

(I)	**Enabling digital self-determination**	As confirmed by scientific research, guiding users through nudges and small-scale interventions can be an effective way to help users reduce their internet use and avoid the negative consequences of excessive smartphone use. A 'Guide' policy approach gives users the ability to determine their own digital environment. Notably, users could still opt to spend significant time on the platform - for instance, online content creators. However, choosing how much to use the platform should be up to the individual and not induced by the platform.
(II)	**Regulatory feasibility**	It is costly to identify the most important persuasive design features, make them customisable, and define user-friendly defaults. It is necessary to tailor this list of features to each online platform, thus also requiring a high degree of cooperation from the regulated companies. Lastly, the list of features needs to be continuously reviewed and updated by an independent board to meet the platforms' persistent innovations.

(III)	**Room for business and innovation**	Compliance with the new rules is initially costly for firms, as they must fundamentally change their products. Compared to other regions, the European profits of the affected platforms would shrink, but they would likely remain in the market. Incentives to innovate persist.

4.3.3 Restrict

Table 4.

(I)	**Enabling digital self-determination**	An outright ban on specific design features or entire digital products would be very effective in tackling digital addiction. However, such a ban would also eliminate any opportunity to use these digital platforms meaningfully.
(II)	**Regulatory feasibility**	A ban represents a substantial market distortion with a limited legal basis. To the extent that the prohibition primarily applies to companies of a specific size, this would create perverse incentives for businesses to escape the regulation and likely lead to legal challenges.
(III)	**Room for business and innovation**	The ban would send a strong negative signal to digital companies in Europe in the affected and adjacent sectors. Thus, implying detrimental effects on the European economy.

4.4 Preferred policy option: Guide

Upon evaluation, the 'Guide' policy option emerges as the most favourable. The approach balances the protection of users with the flexibility to accommodate diverging preferences. While the policy is associated with some initial regulatory costs, it remains feasible overall. Lastly, the disruptions to the economy are expected to be manageable and contained, with incentives for commercial innovation persisting. Thus, VLOPs need to give users a real choice of interface settings.

Box 4. Illustrating the 'Guide' approach through an image-sharing social media platform

Currently, users have little or no control over the interfaces of social media platforms and therefore depend on the platform provider's design choices. Users are confronted with a binary decision: Use an app with all its addictive features or do not use it at all. Online platforms should make altering default settings as accessible as possible and give users re-occurring prompts to change settings. Exemplary tools to guide users include:

- Ability to put in reminders to take time off the platform.
- Defaults for stopping points on feeds.
- Option to deactivate counts of likes, views, or comments.
- Screen time limits.
- Ability to turn off or change the appearance of notifications.
- Limit personalisation of content.

The example below sets out a possible user experience after the implementation of our proposal:

- A user opens the app. One of the buttons in the main navigation bar at the bottom of the user's home screen leads to a "Settings" page where users can modify their experience on the app.
- Once a month, the platform reminds the user of the option to alter app usage settings to benefit the user's well-being.
- After this prompt, the user realises that they have spent more time on the app than they would have liked to and opens the app's settings section.
- In these settings, the user has enabled a prompt every five minutes asking whether they want to continue using the app. Additionally, the user sets a time limit for app usage of 30 minutes daily.
- Additionally, when setting up the app, the user kept the default setting of having the app's "infinite scrolling" feature turned off. After every twentieth post or story the user sees, they need to click a "load more" button to continue visiting the new content.
- After looking at posts and stories for 30 minutes in one day, the app gives a prompt saying that the daily limit has been reached, freezes, and becomes unusable.

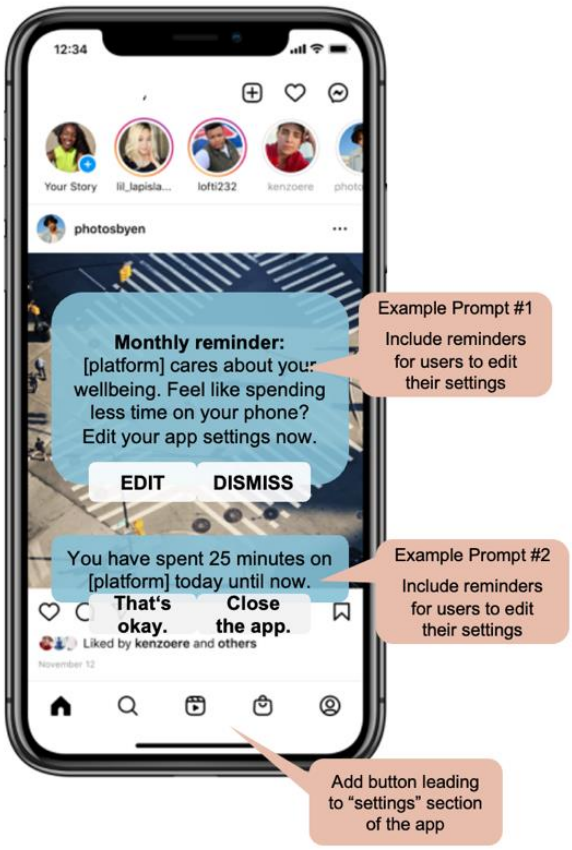

Figure 1. Graphical representation of possible changes to a user's home screen on an image-sharing platform

5 Policy recommendation

The 'Guide' approach presents a larger regulatory vision for curbing digital addiction in the EU. To implement this vision, a series of supportive policy initiatives are required, which are introduced in this section.

5.1 Stakeholder engagement strategy

To develop and implement 'Guide', the European Commission will require a clear engagement strategy to involve relevant stakeholders. In Figure 2, the authors identify and categorise the relevant stakeholders. Based on their respective interest in and power to influence the policy problem, the stakeholders have been grouped into the following categories: Subjects, players, crowd, and context-setters.

Power	Low Interest	High Interest
High	**Subjects** • Consumer protection agencies (e.g., BEUC on EU level, VZBV on national level) • NGOs, charities (e.g., European Federation of Addiction Societies, EDRi, UPAD) • Industry organisations (e.g., IASMP) • Employees of VLOPs	**Players** • European Commission • European Parliament • Council of the EU • Tech companies (esp. VLOPs: GAFAM) • Media regulation bodies (DLM, ERGA, CSM) • Ministries on national level • Individuals: Margrethe Vestager, Thierry Breton
Low	**Crowd** • Users • Tech company shareholders	**Context-setters** • Media; legacy & new • National Members of Parliament • Members of the European Parliament (e.g., MEPs Schaldemose and Schwab)

Figure 2. Stakeholder Analysis

For the effective development and design of this policy, the authors propose a co-regulatory approach based on three levels that address the various stakeholders and their different organisational or institutional objectives, interests, and capacities:

- **Cooperation** with players, particularly European Commission stakeholders.
- **Collaboration** with players and subjects, particularly national lawmakers, public health bodies and media regulators.
- **Consultation** with subjects, crowd, and context-setters, including third parties such as companies, NGOs, and charities. It is important to note that consultation with the VLOPs will build on existing efforts to make their use of data more transparent.

VLOPs will likely object to the framing of the digital addiction problem, particularly the suggested link between increasing digital addiction and VLOPs' persuasive design practices. Creating awareness campaigns for users and context-setters that leverage impartial health authorities and follow a co-regulatory engagement approach with VLOPs should mitigate this.

The Centre notes that most relevant stakeholders on the EU level have substantive experience with regulating digital platforms. The existing legislation that is relevant to our policy problem, as discussed earlier in section 3, necessitates cooperation between the various European Commission and other EU institutional stakeholders. Furthermore, it will be necessary to engage member states where VLOPs have their European headquarters. The negotiations and revisions of the DSA/DMA demonstrate

the difficulty in finding consensus on regulatory issues around VLOPs. Additionally, consultation and cooperation with national health bodies that have conducted more medical research than European bodies should aid in establishing a European norm for the definition and diagnosis of digital addiction.

5.2 Anticipated challenges

In the following section, we outline three critical challenges in designing and implementing the 'Guide' approach.

GDPR shortcomings: Despite progress in protecting citizens' data (European Commission COM/2020/264 final, 2020), the GDPR provides a precedent for a behavioural response from digital companies aimed at circumventing regulation (Galli, 2020). More specifically, companies responded to the GDPR by overcomplicating the preference settings and defining defaults which favour the companies' interests. Hence, the operationalisation of the 'Guide' approach must anticipate and undermine these responses from companies, making it as simple as possible for users to change the interface and set anti-addictive defaults.

Evaluation: The policy will have to be evaluated to ensure its relevance to new forms or practices of persuasive design as technological innovation progresses. Establishing and regularly evaluating metrics for the performance of the 'Guide' policy requires the sustained involvement of experts in formulation and evaluation. Currently, there are no widely accepted measures for digital addiction due to the different conceptual and diagnostic labels used.

Enforcement and compliance: Establishing appropriate mechanisms for assessing non-compliance and issuing fines presents a challenge for implementing the 'Guide' approach. The penalties must outweigh the financial benefit VLOPs derive from the unimpeded use of persuasive technologies to be effective. The DSM and GDPR provide precedents for market investigations and penalty-based enforcement mechanisms. Non-compliance with the requirements of 'Guide' should carry similar penalties as established in the DSM, including fines of up to 10% of a VLOPs turnover in the preceding financial year.

5.3 Steps to implementation

The authors view the following steps as decisive for successfully implementing the 'Guide' approach. See Appendix B for additional related measures.

5.3.1 Formulation: Data collection initiative

For the policy formulation phase of the 'Guide' approach, policymakers and experts will require further data on the scale and nature of the problem, particularly on the following areas:

- Systematic, cross-country evaluation of the prevalence of digital addiction.
- The scale and use of persuasive technologies by VLOPs.
- Performance metrics of persuasive technology, for example, the measurable changes in user behaviour.

The initiative builds on the transparency requirements set by DSA and DMA, allowing for more accessible data collection.

5.3.2 Design: Consultations with experts on operationalising 'Guide'

The main aim of the consultations will be the establishment of user-centric design defaults and 'Guide'-compliant features that can be applied as a standard across the digital services/products of the VLOPs. As evidenced by Oinas-Kukkonen and Harjumaa's (2009) work, identifying and categorising persuasive design features and developing user-determined alternatives requires domain expertise. This expertise is beyond the scope of policymakers; therefore, the design of 'Guide' will require the involvement of privacy and design experts. In line with the data collection initiative, consulting with the VLOPs' own user experience (UX) design experts and behavioural scientists would be beneficial for their insights.

5.3.3 Implementation: Enforcement and evaluation

A formal independent review board would be beneficial for the ongoing effectiveness of the policy. The persuasive design practices of VLOPs are a changing and dynamic target for regulation. As with the GDPR, it is likely that the regulatory target group will seek to decrease the effectiveness of the 'Guide' policy approach, for instance, by manipulating the choice architecture of user-centric defaults. As such, any resultant policy should include mechanisms to evaluate compliance and ensure the policy's continued relevance. The review board could decide on and use meaningful metrics to assess the effectiveness of the 'Guide' option. These metrics should be informed by ongoing consultation with the independent privacy and design experts involved at the Formulation stage and public health and addiction experts. If needed, additional assessments could be assigned to national public health or media regulation bodies designated by Member States.

6 Conclusion

Digital addiction is a problem that requires a regulatory response from the EU. This paper has provided evidence on the scale of the issue and sketched the causal relationship between digital addiction and persuasive technologies. VLOPs are the primary drivers of digital addiction, upon evaluation of possible policy options, the 'Guide' approach presents itself as the most favourable route to policymakers.

The 'Guide' approach can meaningfully address digital addiction by empowering citizens to determine their own digital environments. The use of anti-addictive defaults and the active engagement of users levels the playing field between citizens and VLOPs. Beyond its efficacy, the proposed approach is also minimally interventionist and feasible from a regulatory perspective. As the lives of Europeans become ever more digitised, the problem of digital addiction will not subside without the intervention of EU policymakers.

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7.1 Appendix A

Persuasive System Design (Oinas-Kukkonen & Harjumaa, 2009)

Design System Quality	Design System Principles
Primary Task Support Persuasive design strategies that support users in carrying out their primary task	• Personalisation • Self-Monitoring • Reduction • Tunnelling • Tailoring • Simulation • Rehearsal
Dialogue Support Persuasive design strategies that provide some degree of system feedback to users, potentially via verbal information or other kinds of summaries	• Suggestion • Praise • Rewards • Reminders • Similarity • Liking • Social Role
System Credibility Support Persuasive design strategies that increase the external credibility of a design system	• Trustworthiness • Real-world Feel • Authority • Expertise • Surface Credibility • Third-Party Endorsements • Verifiability
Social Support Persuasive strategies that enable system users to interact or socialise with others	• Social Learning • Social Comparison • Social Facilitation • Normative Influence • Cooperation • Competition • Recognition

7.2 Appendix B

Steps to Implementation

	Engine Room	Superstructure
Formulation	• Publication of white paper proposing policy response • Stakeholder workshops with representatives of VLOPs • Launch of data collection initiative in cooperation with VLOPs and health experts • Regulatory Scrutiny Board impact assessment	• Outreach to consumer protection bodies • Public consultation process • National parliaments consultations • European Commission proposes regulation
Design	• Consultation with privacy and design experts on user-centric defaults • Consultation with 'humane tech' bodies • Expert conference on digital addiction in Europe	• Regulatory sandbox events with public • EU Parliament & Council readings • Consultations with Member State health and technology committees • EC drafts implementation strategy • European Parliament adopts proposal
Implementation	• Establishment of 'Guide' policy review board • Evaluation of implementation problems/challenges • Establishing evaluation criteria, including Effectiveness of empowerment and health metrics	• Allocation of national jurisdiction and resources • Establishing modes for national oversight and EU-wide enforcement • Awareness campaign among EU politicians regarding redress in cases of VLOP non-compliance

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