From Digital Nudging to Users' Self-Determination: Explainability as a Framework for the Effective Implementation of the Transparency Requirements for Recommender Systems Set by the Digital Services Act of the European Union

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In the contemporary information age, recommender systems (RSs) play a crucial role in determining the way in which people interact and obtain information online: in fact, from social media feeds to news aggregators and e-commerce websites, users are constantly targeted by personalized recommendations about what they may like. The Digital Services Act of the European Union [1], which is the first supranational regulation addressing automated recommendations specifically, defines RS as "a fully or partially automated system used by an online platform to suggest in its online interface specific information to recipients of the service or prioritize that information, including as a result of a search initiated by the recipient of the service or otherwise determining the relative order or prominence of information displayed" (DSA, art. 3 (s)). This definition highlights the method ("fully or partially automated"), aim ("to suggest […] or prioritize"), content ("specific information"), target ("recipients of the service"), input ("as a result of a search initiated by the recipient") and output ("determining the relative order or prominence of information displayed") of a recommendation process. As it can be observed, RSs touch upon the main aspects of user experience and this is why their influencing potential should not be underestimated: they can give rise to a variety of ethical concerns related to privacy, autonomy and fairness [2], to name but a few. Indeed, the political economy of platforms based on profiling and recommendations has been notably addressed by [3] with the concept of "surveillance capitalism".

Independent research and users' access to the design and functioning of the RSs implemented on mainstream platforms is usually prevented by proprietary constraints. The DSA addresses this issue with a specific article, according to which "Providers of online platforms that use recommender systems shall set out in their terms and conditions, in plain and intelligible language, the main parameters used in their recommender systems, as well as any options for the recipients of the service to modify or influence those main parameters" (DSA, art.27 (1)). The aim of this provision is to "explain why certain information is suggested to the recipient of the service": therefore, the parameters need to include, at least, "the criteria which are most significant in determining the information suggested to the recipient of the service" (i.e., content) and the reasons for its "relative importance" (i.e., ranking) (DSA, art. 27 (2)). Additionally, when options to modify or influence the main parameters are stated in the terms and conditions, "providers of online platforms shall also

make available a functionality that allows the recipient of the service to select and to modify at any time their preferred option" (DSA, art. 27 (3)). In order to make this requirement work in practice, "That functionality shall be directly and easily accessible from the specific section of the online platform's online interface where the information is being prioritised" (*ibidem*).

Article 27 of the DSA seems to be aimed at empowering users to influence the outcome of algorithmic recommendations. This provision addresses four of the aspects of the definition of RS provided by Article 3: method, target, input and output. In particular, the traditionally passive role of the target is reversed, as the recipient may determine the method (through the choice of parameters) and, indirectly, also the input (the type of data to be processed through the parameters) that the RS will use to produce its output. However, platforms are not obliged to be provide options for users to modify or influence the parameters if this possibility is not specified in the terms and conditions, and platforms arguably have no interest in providing this possibility voluntarily. Therefore, this article formally grants users the right to influence the recommendation process, but only in some limited cases which may not be likely to happen, as [4] point out.

Nonetheless, the opportunity to enhance transparency and users' self-determination has not been welcomed by a prominent digital company like Meta, which has stated that "the breadth of some of the auditing obligations under the DSA should be clarified/improved as these could become a barrier for growth in the sector"[2]. Indeed, to help enforce the new requirements, the European Commission has recently established the European Centre for Algorithmic Transparency (ECAT), which will assess "whether very large online platforms and search engines comply with their obligations under the Digital Services Act", including through carrying out inspections at the platforms' premises to analyse "the design, functioning and impact of advanced algorithms, like recommender systems, in their production environments" [6].

However, the impact of the DSA on the transparency of RSs will also depend on users' ability to understand the structure and the policy of the recommendation. In this regard, the provisions introduced above represent a practical implementation of the regulatory principles outlined in Recital 70 of the DSA, according to which "online platforms should consistently ensure that recipients of their service are appropriately informed about how recommender systems impact the way information is displayed, and can influence how information is presented to them"[3]. This translates to the need of "clearly present[ing] the parameters for such recommender systems in an easily comprehensible manner to ensure that the recipients of the service understand how information is prioritised for them". (*ibidem*). A right to explanation for RSs could be identified in this formulation: in fact, the "easily comprehensible manner" of presenting the parameters of RSs so that "the recipients understand how information is prioritised for them" can come to effect only if RSs are explainable.

Given the unprecedented consequences that the DSA is likely to have both on the business of platforms and on the self-determination of users, my research focuses on whether and how the enforcement of this regulation can mitigate the unfair consequences of the power imbalance between the former and the latter. To this aim, I firstly outline the ethical and social implications of RSs starting from the consideration of automated recommendations as a multistakeholder phenomenon [7]. Then I discuss the risks arising from digital nudging based on RSs and propose explanations as a tool that can reduce the impact of those risks by increasing users' awareness. Through a comparative analysis of relevant articles of the DSA, the General Data Protection Regulation (GDPR) and the Artificial Intelligence Act, I outline how the provisions of the DSA fill some of the gaps left by other European regulations, while leaving the so-called right to explanation substantially unaddressed. As a result of this analysis, I argue that users' self-determination can be effectively enhanced only if the implementation of the new regulatory provisions is supported by:

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[2] https://enterprise.gov.ie/en/consultations/consultations-files/facebook-dsa-submission.pdf [5].
[3] The right to information outlined here is mirrored by Article 13-15 of the GDPR.

1. Effective practical mechanisms through which users can influence the type and outcome of the recommendation directly on the interface of the online platform.
2. Personalized explanations aimed at clarifying to non-experts the means through which RSs influence users' behaviour and, in turn, how users can influence the outcome of RSs.

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